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Imposing Cognitive Load within Job Interviews: Targeting Applicant Deceptive IM through Cognitive Load Theory

Moon, Benjamin

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Imposing Cognitive Load within Job Interviews: Targeting Applicant Deceptive IM through Cognitive Load Theory

by

Benjamin Moon

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Abstract

Despite the problems associated with applicant deceptive impression management (IM) within job interviews, research on interventions to address the behaviour has not been promising. However, outside of job interview contexts, research has suggested that it is possible to reduce and better detect deceptive behaviour by imposing cognitive load onto individuals. Therefore, the main purpose of the study was to enhance our understanding of the role of cognitive load in deceptive IM within job interviews. More specifically, the study explored how cognitive load manipulations influence the mental capacities of honest applicants and those using deceptive IM, and how they react to these manipulations. The study also explored the effects of these manipulations on the detection rates of deceptive IM. University student participants ($N = 238$) were randomly assigned to mock interviews that either imposed or did not impose cognitive load, and they were also instructed to be either honest or use deceptive IM. The results of the thesis found that cognitive load manipulations were effective in increasing perceived cognitive load. Furthermore, there were mixed results on the effect of cognitive load manipulations on applicant reactions and interview performance. The cognitive load manipulations were also not effective in increasing the detection rates of deceptive IM to chance levels. Overall, the study helps advance theory on deceptive IM within job interview settings, and it also provides a potential tool for organizations in addressing the problematic behaviour.

Keywords: Deceptive Impression Management, Job Interview, Cognitive Load, Applicant Reactions, Interview Performance
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Chapter 1: Introduction

Impression Management (IM) refers to a series of behavioural tactics that attempt to favourably control how individuals present themselves to others (Schlenker, 1980; Leary & Kowalski, 1990). IM is widely prevalent among applicants during job interviews (Ellis et al., 2002). Furthermore, previous literature has emphasized the need to distinguish between honest IM (i.e., emphasizing positive past skills and experiences) and deceptive IM (i.e., claim qualifications and skills applicants do not have; Levashina & Campion, 2006; Roulin & Bourdage, 2017), as applicants using deceptive IM may pose problems for organizations (Gilmore et al., 1999; Levashina & Campion, 2006). These applicants also tend to possess undesirable traits, such as low honesty-humility, low conscientiousness, high competitive worldviews and high scores on the dark triad measures (Bourdage et al., 2015; Bourdage et al., 2018; Roulin & Bourdage, 2017; Roulin & Krings, 2016). Given the potentially negative implications associated with deceptive IM, researchers have explored ways to detect (Roulin, 2016) and reduce (Law et al., 2016) deceptive IM within job interviews. However, the findings have largely been not promising. More specifically, interviewers have trouble recognizing when applicants use deceptive IM tactics (Roulin et al., 2015; Roulin, 2016). In addition, research has provided very few effective and practical solutions to increase the detection rates within job interviews (Powell & Roulin, 2018).

An important, but a largely neglected aspect of deceptive IM that may provide considerable insight into addressing deceptive IM is the role of applicant cognition. Research outside of job interview settings has consistently demonstrated that deceptive behaviour as a whole is cognitively more demanding than being truthful. For instance, individuals engaging in deceptive behaviour have to produce and communicate (or withhold) distorted information to a
specific target (Forrest & Feldman, 2000), and monitor how others perceive themselves at the same time (Spence et al., 2001). These cognitive processes are more demanding compared to those associated with being truthful, as demonstrated by previous studies on response times (Spence et al., 2001; Suchotzki et al., 2017), neuroimaging studies (Lee et al., 2009; Vartanian et al., 2013), and non-verbal behaviour (Vrij et al., 2017). Specifically, the above cognitive processes that are involved in generating deceptive behaviour can be demanding on the working and the short-term memories, as the processes are often spontaneous and unrehearsed (Sporer & Schwandt, 2006).

Considering the demanding cognitive processes associated with lying and deceptive behaviour, a number of studies outside of the I-O Psychology literature have begun to explore deceptive behaviour though the framework of Cognitive Load Theory (CLT; Paas & Merrienboer, 1994), by imposing extraneous cognitive load on individuals to limit their cognitive resources, and thereby make deceptive behaviour more difficult to execute (Vrij et al., 1997; Walczyk et al., 2013). Many experimental studies have indicated that individuals are more likely to be honest under higher cognitive load (Foerster et al., 2013; Shalvi et al., 2012; van’t Veer et al., 2014). Furthermore, imposing cognitive load on applicants outside of workplace recruitment settings (primarily forensic) has been shown to better differentiate truth-tellers and liars, and increase the accuracy rates in detecting deception (Blandon-Gitlin et al., 2014; Vrij et al., 2012; Vrij et al., 2017; Walzyck et al., 2013).

However, it is currently premature to claim that imposing cognitive load can help make deceptive IM more difficult and result in better detection of deceptive IM for the following reasons. First, while there are a number of theories and studies (Walczyk et al., 2013; Suchotzki et al., 2017; Vrij et al., 2008) establishing the difficulty of lying, research has yet to empirically
test whether deceptive IM itself is more cognitively demanding than honest behaviour, which is conceptually different from deception as a whole (Carlson et al., 2011). More specifically, deceptive IM consists of a series of acts and behaviours with the specific goal of managing self-impressions (Carlson et al., 2011), rather than isolated acts of faking (Jehn & Scott, 2008). Deceptive IM also can also be more subtle in how individuals fabricate their responses (Roulin et al., 2014). Nevertheless, the lack of empirical attention in the area is surprising, because theory suggests that the capacity to use deceptive IM is thought to be an important antecedent of the behaviour (Levashina & Campion, 2006). Second, much of the research on imposing cognitive load has been conducted outside of workplace recruitment settings, particularly within forensic psychology (e.g. Vrij et al., 2008). Considering how motivations and perceived stakes of outcomes play an important role in engaging in IM or deceptive behaviour as a whole (Leary & Kowalski, 1990; Masip et al., 2016), it is possible that differences in these factors across various interview settings (e.g., job interviews, forensic interviews) impact the effectiveness of imposing cognitive load on reducing deceptive IM. Employers would also have to be careful in ensuring that imposing cognitive load during job interviews does not result in profoundly adverse reactions from applicants, as some of the techniques can be quite unexpected or burdening (Vrij et al., 2017). Negative reactions towards selection and assessment platforms in the workplace can result in detrimental implications to the organization (Geddes & Baron, 1997; Gilliland, 1993).

Overall, there is clear evidence suggesting that deceptive IM poses a serious problem to employers and to organizations. However, research has shown that there are significant challenges in either detecting (Roulin et al., 2015; Roulin, 2016) or reducing (Law et al., 2016) deceptive IM. At the same time, imposing cognitive load onto applicants has shown to be promising in reducing and detecting deceptive behaviour in contexts outside of the workplace.
As such, Cognitive Load Theory may help inform effective interventions for reducing and better detecting deceptive IM among applicants within the job interview context. However, it is unclear whether the approach is effective and practical within job interview settings, because no research to date has explored into the role of cognitive load in the use of deceptive IM within job interviews. Subsequently, it is also unclear as to how applicants react to perceptions of higher cognitive load as a result of these interventions. This is important to explore because undesirable reactions from applicants in general can also have negative implications onto organizations. Therefore, the main purpose of the study is to enhance our understanding of the role of cognitive load in deceptive IM. This includes investigating methods for imposing cognitive load onto applicants, in order to address the use of deceptive IM within job interviews.

The study contributes to the IM literature within job interviews in several important ways. First, it incorporates the role of cognition in deceptive IM, thereby enhancing theory in an important area within I-O Psychology that has rarely looked into deceptive IM from a cognitive perspective. Furthermore, the study introduces cognitive interventions that may help address several major problems that arise from the use of deceptive IM among applicants. These include the lack of penalties on applicants for using these tactics, as well as how unqualified applicants may be considered for hire (Melchers et al., 2020). The study also raises an important question of how individuals react and behave as a result of receiving cognitive load interventions, which have yet to be explored in any research domain. Consequently, testing applicant reactions will also help get a preliminary sense of whether it is feasible to implement these interventions within job interview settings. Lastly, through all of these contributions, the study also integrates a wide body of interdisciplinary research (e.g., cognitive psychology, forensic) to further advance knowledge on deceptive IM.
Deception is Cognitively Demanding

As mentioned earlier, research has yet to explore whether deceptive IM use within job interviews is more cognitively demanding than honest behaviour, even though the capacity to use deceptive IM is thought to be an important predictor in its use (Levashina & Campion, 2006). However, there is an abundance of research and theories that suggest the cognitively demanding nature of lying or deception as a whole. The literature on deception will help provide preliminary insight into deceptive IM from a cognitive perspective, because both deception and deceptive IM involve the process of communicating fabricated or distorted information (Jehn & Scott, 2008; Roulin & Bourdage, 2017).

According to the Activation-Decision-Construction-Action theory (Walczyk et al., 2014), individuals who wish to engage in deception must retrieve the truth from long-term memory, decide how to distort the truth, construct the deceptive information using their short-term memory and communicate the information to the target. The cognitive processes can also be particularly demanding on the working memory, as individuals have to deliberately make sure that their deceptive information is believable (Sporer & Schwandt, 2006; Zukerman et al., 1981). Simultaneously, individuals have to monitor their target (in the case of job interviews, the interviewer) to determine how they react towards the tactics (Vrij et al., 2010). Deception also involves suppressing cognitive stimuli, as individuals have to withhold and omit the truth within their thought processes, and also to their target (Lane & Wenger, 1995; Pennebaker & Chew, 1995; Vrij et al., 2010). Outside the peripheral of creating and suppressing information, individuals are also likely to justify engaging in deception as a measure of self-enhancement (Shalvi et al., 2011). All of these processes, which are evidently more deliberate and less automatic than telling the truth (Walczyk et al., 2003), are especially cognitively demanding.
when individuals are more motivated to lie (Vrij et al., 2008), such as in job interviews, where applicants seek to obtain a desirable position.

Empirical studies on deception outside job interview contexts consistently support these notions. Deceptive responses tend to elicit longer response times (Spence et al., 2001; Suchotzki et al., 2017). Furthermore, when experiencing higher cognitive load, individuals engaging in deception tend to elicit different patterns of non-verbal behaviour compared to those who are telling the truth, such as decreases in lower body movements, more frequent speech disturbances and a higher-pitched voice (Vrij et al., 2008; Vrij et al., 2012; Vrij & Semin, 1996). Previous neuroimaging studies also demonstrate greater brain activity when engaging in deception than telling the truth (Langleben et al., 2002; Spence et al., 2001). Individuals who engage in deception also tend to have greater pupil dilation (Wang et al., 2010) and faster heart rate (Riggio & Friedman, 1983). Additionally, self-report measures have demonstrated that deception is more cognitively demanding than being honest (Vrij et al., 2006). In summary, a wide body of research consistently demonstrates that deceptive behaviour requires greater amounts of cognitive resources compared to being honest.

Given these findings, it is likely that deceptive IM (Bourdage et al., 2018) is also more cognitively demanding. This is because the characteristics of deception that are more cognitively demanding also exist within deceptive IM to an extent (e.g., fabricating and distorting information from the truth, monitoring the reactions of the target individual). Therefore, I propose that it is appropriate to explore deceptive IM from the perspective of Cognitive Load Theory (Paas & Merrienboer, 1994), by imposing cognitive load onto applicants.

Exploring Deceptive IM through the perspective of Cognitive Load Theory
Cognitive Load Theory (CLT) assumes that individuals have a limited working memory that interacts with an unlimited long-term memory (Paas et al., 2003; Paas & van Merrienboer, 1994). Within the framework, cognitive load represents the mental load that a specific task imposes on an individual’s cognitive system (Paas et al., 2003; Paas & Van Merrienboer, 1994; Sweller, 2011). Cognitive load is generally seen as a multidimensional construct. For instance, Paas et al. (2003) distinguishes mental load, which refers to the cognitive load from the interaction between the individual and the particular task, whereas mental effort refers to the allocated cognitive capacity that is dedicated to the task. However, these distinctions are largely theoretical, and measures of cognitive load tend to rarely separate the two constructs given their high theoretical overlap (Paas et al., 2003). Rather, it has become more common to distinguish types of cognitive load based on the relevance to the main task, particularly with rating scales (Cook et al., 2017; Klepsch et al., 2017; Leppink et al., 2003; Seery et al., 2012).

Intrinsic load refers to the mental load and effort from task complexity and prior knowledge of the task. Furthermore, extraneous load refers to the mental load and effort that is not beneficial for the main task, and germane load refers to the mental load and effort that is beneficial for the main task; Leppink et al., 2013; Paas et al., 2003). However, the existence of germane load has been more recently disputed (Klepsch et al., 2017; Leppink et al., 2013).

When using CLT to reduce the cognitive capacities to target deceptive IM of applicants within job interviews, there are two key questions that need to be addressed. First, researchers need to evaluate and determine which manipulations are the most valid and practical for imposing cognitive load. This is important to consider because some manipulations may garner more negative reactions from applicants or other undesirable outcomes, and there is also the risk of unintentionally penalizing honest applicants. Second, researchers also need to determine the
appropriate method to measure cognitive load that occurs during a job interview, in order to reliably determine the effectiveness of various manipulations.

**Imposing Cognitive Load**

Previous studies that used the CLT framework to make deception more taxing and difficult have imposed *extraneous load* onto the individual’s cognitive system, while they engage in a task that provides them the opportunity to engage in deception (van’t Veer et al., 2014; Vrij et al., 2012). There have been a number of novel approaches within interview contexts, nearly all of which were outside of workplace settings. For example, previous studies have asked applicants to maintain eye contact with the interviewer (Mann et al., 2012; Vrij et al., 2010). The approach assumes that maintaining eye contact would deplete cognitive resources, and some individuals tend to avert their gaze when engaging in deception (Hartwig & Bond Jr., 2011; Mann et al., 2004). However, the approach has shown to have mixed results, as individuals engaging in deception actually tended to make more deliberate eye contact in Mann et al. (2012). Furthermore, the approach may not be feasible when applicants participate in asynchronous job interviews, which are becoming much more common (Langer et al., 2017; Torres & Mejia, 2017). Applicants may also question the face validity of such procedures for many occupations, and the process may be impractical to implement in longer in-person job interviews.

There has also been some limited research into the Time-Restricted Integrity Confirmation (Tri-Con) approach to impose cognitive load onto applicants (Walczyk et al., 2005; Walczyk et al., 2009). The approach designs questions so that applicants have difficulty analyzing the full question content until the last word, and applicants are required to respond to the questions as quickly as they can (Walczyk et al., 2005). Walzyck et al. (2009) tested the Tri-Con approach during a mock interview setting that also included questions related to
employment, which is the only study that tested imposing cognitive load onto applicants relating to workplace settings. The approach did not find significant differences for indicators of cognitive load, such as response time and inconsistency of answers, for questions related to employment (Walzyck et al., 2009). Furthermore, the Tri-Con approach was primarily designed for closed-ended (yes or no) questions, meaning that the approach would not be usable for open-ended questions, especially considering how open-ended questions require some deliberation before even answering honestly. This greatly limits the utility of the Tri-Con approach, because open-ended questions appear in virtually all job interviews, and they provide ample opportunities for applicants to use deceptive IM (Ellis et al., 2002).

Other methods of imposing cognitive load that would not be suitable for most job interview settings include forced turn taking among multiple applicants (Vernham et al., 2014), as most interviews occur with only one applicant. Debey et al. (2012) asked applicants to answer questions while gripping an object. Again, the approach would be impractical for asynchronous job interviews, the task would require physical resources from the organization, and applicants may question the face-validity of the approach. This is not to suggest that researchers should completely dismiss these cognitive approaches due to their shortcomings. However, it is important to evaluate the existing approaches to impose cognitive load before using them within job interviews, because they may be impractical to implement or have very little validity for recruitment purposes. Furthermore, unlike certain settings such as forensic interviews (Vrij et al., 2008), researchers and employers must be particularly careful in ensuring that the approaches do not create adverse reactions from applicants, as this can have serious consequences for organizations (Gilliland, 1993).
**Selected Approaches in the Current Study.** In the current study, I test two approaches to imposing cognitive load that may be more practical and valid for job interviews. The first approach is the reverse-order manipulation, where individuals are asked narrative questions in reverse chronological order, and subsequently, they would also be expected to answer the questions in the same backwards ordering (Vrij et al., 2008). As an example, a typical behavioural interview question would present the following set of questions in the following order, starting with the context:

*Context:* Tell me about a time when you tried to reduce stress for a co-worker.

a) How did you first notice the co-worker’s stress?

b) What steps did you take to deal with the co-worker?

c) Did your actions help in the end?

During the reverse-order condition, the chronological order of the questions after the provide context is reversed. In other words, interviewers would be expected to first answer “c) Did your actions help in the end?”, and end with “a) How did you first notice the co-worker’s stress?”. The approach has been especially helpful in distinguishing non-verbal, behavioural differences between individuals engaging in deception and those telling the truth (Vrij et al., 2008; Vrij et al., 2012). Furthermore, when comparing the detection rates of deceptive behaviour between conditions imposing and not imposing cognitive load within a meta-analysis, the studies with the greatest differences in the detection rates tended to use the reverse-order technique. These findings may be explained by the particularly disruptive nature in answering questions in reverse-order. Individuals are generally unaccustomed to narrating events in backward order (Kahana, 1996), which may require more deliberate processing and generation of interview responses. The more deliberate processing would therefore increase the number of
inconsistencies within the responses of applicants that engage in deception (Evans et al., 2013; Vrij et al., 2012). While the approach would be practical to implement across various job interview settings, there are also limitations and concerns to the approach. Notably, the reverse-order technique has yet to be properly applied to non-narrative questions. There is also concern that the approach imposes too much cognitive load, as Fenn et al. (2015) suggested that it can often misclassify truth-tellers as liars.

To address these limitations and concerns surrounding the reverse-order technique, the study also explores imposing cognitive load onto applicants through a secondary recall-based task. During the task, applicants memorize a series of items, subsequently answer the interview question, and then recall the items that appeared previously. In the current study, participants are first asked a series of items related to the target occupation of the mock interview (e.g., Size Medium, T Shirt, Inventory, Customer Service, Department). Afterwards, the applicants are given the interview question in the regular order, which they would answer immediately. Afterwards, the applicants are asked to recall the list of items that they memorized prior to receiving the actual interview question, and the process would repeat for each “set” of interview questions. The approach is applicable to any type of interview question, and there has been less concern about the approach imposing too much cognitive load onto applicants. Furthermore, applicants may perceive higher face validity towards the recall-based secondary task, because acquiring and retaining information is a valid component of many occupations (Straka, 2000). The approach can also indirectly measure the cognitive ability of individuals, which is one of the strongest predictors of job performance (Bobko et al., 1999). In addition, previous studies that instructed applicants to memorize and recall a series of letters or numbers through a secondary task indicated that engaging in the task depletes cognitive resources for generating and holding
deceptive information in their working memory (van’t Veer et al., 2014; Gilbert & Hixon, 1991; Maldonado et al., 2018).

**Measuring Cognitive Load**

While previous studies have adopted a wide range of methods in measuring cognitive load, there is still a bit of controversy and debate as to which approach is the most reliable and valid (Sweller et al., 2011). Because cognitive load has been seldom explored within the I-O Psychology literature, research has also not established which methods are the most practical and appropriate within job interviews. A number of studies outside of I-O Psychology have used physiological indicators, such as eye movements (Maan et al., 2012; van Gog & Jarodzka, 2013) or heart rate (Paas & van Merrienboer, 1994). Furthermore, previous studies have also used brain activity to measure cognitive load through brain scans (Antonenko & Niederhauser, 2010; Spence et al., 2001). These measures are likely to be unsuitable for most job interview settings, as it takes significant resources to obtain and maintain the devices. They would also be especially intrusive towards the applicants, as the measure could reveal medical information that the applicant does not wish to disclose. In addition, some of these measures (e.g., brain scans) are not easy to administer at all while undertaking a job interview. The sensitivity of these measures in distinguishing various levels of cognitive load has also been rather mixed (Paas et al., 2003).

A relatively newer approach to measuring cognitive load is through the dual-task method, where individuals complete a secondary task to measure cognitive load while engaging in the primary task. The method assumes that both the primary and the secondary tasks utilize similar mental processes, and that the performance on the secondary task is inverse to the amount of cognitive resources allocated to the primary task (Brunken et al., 2002; Chandler & Sweller, 1996; Schoor et al., 2012). The approach has shown to have high reliability and validity (Park &
Brunken, 2015), and the dual-task methodology also serves as a basis for imposing cognitive load (Gilbert & Hixon, 1991; van’t Veer et al., 2014), including in the current study. However, it is difficult to measure cognitive load using the approach when studies also choose to manipulate the extent of cognitive load (e.g., varying the number of letters to recall), as there would be issues in comparing the performances of two tasks that vary in their characteristics. It would also prevent conducting research where some conditions do not impose cognitive load at all. While it is technically possible to use a secondary task to manipulate cognitive load, and then use a third task to measure cognitive load that is constant across all conditions, this would likely end up imposing too much cognitive load on some or all of the participants.

**Selected Approach in the Current Study.** There are also self-report rating scales to measure cognitive load, which are likely the most suitable approach for job interview research. Therefore, the current study uses the self-report approach to measure the cognitive load of applicants. The rating scales assume that individuals can reliably reflect on their cognitive processes and their exerted mental effort (Paas et al., 2003). Although rating scales initially received skepticism from researchers (Brunken et al., 2003), they have shown to be the most sensitive approach to measuring cognitive load (Paas et al., 2003; Paas & van Merrienboer, 1994; Sweller et al., 2011). The self-ratings also consistently correspond to varying complexities of the primary task (Ayres, 2006), and using these scales to measure cognitive load is also very unobtrusive and easy to administer across various settings (Paas et al., 2003). Within job interview settings, it is feasible to provide the rating scales immediately after the interview session, and there would be little risk of adverse reactions from applicants.

**Study Hypotheses**
As an overview, the study uses an experimental design that manipulates imposing cognitive load (i.e., no manipulation, reverse-recall and secondary task) and the behavioural strategy used throughout the entire interview (i.e., honest vs. deceptive IM). Therefore, there are a total of six conditions. Using the 2 x 3 study design, Hypotheses 1 – 3 explores into the effectiveness of using the cognitive load manipulations in increasing perceived cognitive load among applicants that either are honest or use deceptive IM. Hypotheses 4 – 8 delve into the effect of the cognitive load manipulations on applicant reactions (i.e., procedural justice, interview anxiety, and organizational attraction). Hypothesis 9 explores the effects of the cognitive load manipulations on detection rates of deceptive IM, whereas Hypothesis 10 explores their effects on interview performance. Refer to Figures 1 and 2 for the conceptual models.
Figure 1

Proposed conceptual model pertaining to applicant reactions and outcomes

Note. CL = Cognitive Load. The hypotheses also explore the direct effects between imposing cognitive load/deceptive IM on the four outcomes of interest (procedural justice, interview anxiety, organizational attraction, and interview performance).
Proposed conceptual model pertaining to detection rates of Deceptive IM.

The Effects of Imposing CL and Deceptive IM Use on Perceived CL

Deceptive IM. Although research has consistently demonstrated that deception as a whole is cognitively demanding (Sporer, 2016; Vrij et al., 2008; Walzyck et al., 2013), little is known about the cognitive processes of deceptive IM. Nevertheless, The Activation-Decision-Construction-Action theory suggests that deception requires additional tasks that makes it more cognitively demanding compared to being truthful (Walczyk et al., 2014). These additional tasks are also thought to be more deliberate and less automatic (Walczyk et al., 2013). Furthermore, the greater cognitive demand can be observed behaviourally, as individuals using deceptive behaviour tend to demonstrate speech disturbances, faster heart rate and decreases in body
movements (Riggio & Friedman, 1983; Vrij et al., 2008; Vrij et al., 2012). Given how deceptive IM likely also involves similar cognitive processes, I predict that the use of deceptive IM will be associated with higher perceived cognitive load than being honest.

Hypothesis 1: Applicants instructed to use deceptive IM will tend to experience significantly higher perceived cognitive load, compared to those that are instructed to be honest.

Imposing Cognitive Load. Furthermore, I predict that imposing cognitive load onto applicants will significantly increase perceptions of cognitive load. Previous studies, including those within research settings where individuals are motivated to engage in deception (Vrij et al., 2008; Vrij et al., 2012), have indicated that deliberately imposing cognitive load by altering the structures of the task tends to successfully increase perceived cognitive load (Bird et al., 2018; van’t Veer et al., 2014; Walczyk et al., 2005). More specifically, responding to interview questions in reverse-order is likely to require greater attention and more deliberate processing towards generating these answers (Kahana, 1996), which will impose additional cognitive load. Furthermore, the presence of the secondary recall-based task is likely to be taxing on applicant mental capacities. This is because applicants have to pay attention to a separate task that uses similar cognitive processes involved with answering interview questions (i.e., holding and recalling information), they would have to switch their attention between the recall-based task and the interview questions regularly (van’t Veer et al., 2014; Walczyk et al., 2003). These assumptions are line with CLT (Paas & Merrienboer, 1994), where prior research outside of interview settings also indicate that higher cognitive load can reduce performance on the primary task (Block et al., 2010; Deck & Jahedi, 2015; Nordstrom et al., 1996). Furthermore, deceptive IM is often salient and rewarding for applicants, which is important to note because individuals
tend to allocate greater cognitive resources towards IM when they experience greater motivation to use these behaviours (Kanfer & Ackerman, 1989). This will further exacerbate perceptions of cognitive load across the three different interview conditions.

Hypothesis 2: Imposing cognitive load will significantly increase perceptions of cognitive load, such that applicants in the reverse-recall and the secondary recall-based task conditions will report higher perceived cognitive load compared to those in the no manipulation condition.

There will also be differences in the relationship between imposing cognitive load and perceived cognitive load among applicants that are instructed to use deceptive IM during the interview, compared to those that are instructed to be honest. Applicants that are instructed to use deceptive IM would already have a greater amount of their cognitive resources depleted from the behaviour, because deception is more cognitively demanding than being honest (Lee et al., 2009; Spence et al., 2001; Suchotzki et al., 2017). Because deception is also thought to be more voluntary and intentional than being honest (which is seen as more automatic; Spence, 2004; Walzyck et al., 2014), applicants that are instructed to use deceptive IM will therefore be more attentive towards their behaviour, which would further deplete their cognitive resources. Given these factors, imposing cognitive load onto applicants will have a stronger effect on increasing cognitive load among applicants that are instructed to use deceptive IM, compared to honest applicants. These applicants will also likely be more aware of experiencing greater cognitive load compared to those not using deceptive IM, considering how these cognitive processes would be more relevant towards effectively presenting themselves favourably through deceptive IM.
Hypothesis 3: Instructions to be honest vs. use deceptive IM will moderate the relationship between imposing cognitive load onto applicants and their perceived cognitive load. More specifically, applicants instructed use deceptive IM will tend to show a stronger positive association between imposing cognitive load and their perceived cognitive load, compared to those that are instructed to be honest.

**Applicant Reactions Towards Imposing Cognitive Load**

The current thesis explores the effects of imposing cognitive load on applicant reactions for several reasons. In general, it is crucial for any recruitment procedure to minimize negative applicant reactions, because they can result in negative implications for organizations (e.g., deterring away qualified applicants, tarnishing the organizational reputation; Gilliland, 1993). However, the cognitive load manipulations in particular may be prone to negative reactions from applicants because they may penalize their opportunities to perform well in the interview, particularly with the use of deceptive IM. This is important to note because a lower outcome favourability among applicants is negatively associated with reactions towards job recruitment settings (Bauer et al., 2001). Additionally, given the intrusiveness of the cognitive load manipulations, it is plausible that certain applicants may question their job-relatedness, which is one of the most salient concerns among applicants towards recruitment settings (Gilliland, 1993). Due to these potential risks of the cognitive load manipulations, exploring applicant reactions towards imposing cognitive load will help obtain a preliminary sense whether the cognitive load manipulations are practical to implement.

Furthermore, on a more theoretical note, there currently lacks research that explores how either cognitive load manipulations, or perceptions of cognitive load influences individual reactions. This is despite the abundance of literature suggesting that variations in perceived
cognitive load shapes individual behaviours and decisions (Deck & Jahedi, 2015; Monahan, 1995; Pontari & Schlenker, 2000). Exploring applicant reactions towards cognitive load also provides a first step towards determining whether more unconscious processing, or more deliberate attitudes and appraisals tend to predominantly explain the relationship between cognitive load and individual behaviour, which is currently of debate in the literature (Moreno & Mayer, 2007; Kuldas et al., 2013; Welsh & Ordonez, 2014). Given this, we explore a number of potential attitudinal reactions below.

**Procedural Justice.** When applicants experience lower perceived cognitive load from the cognitive load manipulations, they will perceive that they are less successfully able to use deceptive IM. Imposing cognitive load can hinder their ability to engage in a behaviour that has the potential to portray themselves more favourably, and thereby perform well during the interview. Furthermore, perceptions of having less opportunities to perform within recruitment settings violates procedural justice (Gilliland, 1993). This implies that imposing cognitive load onto applicants would make them more likely to perceive lower procedural justice towards the interview, because the increases in perceived cognitive load prevents them from using deceptive IM more effectively, which is a way to portray themselves in a favourable light (McFarland et al., 2003; Peck & Levashina, 2017). Such reactions are likely to occur to an extent regardless of whether applicants use deceptive IM. This is because a substantial proportion of applicants report having used deceptive IM at some point (Ellis et al., 2002), and applicants may still want to have the opportunity to engage in deceptive IM.

**Hypothesis 4a:** Imposing cognitive load will significantly decrease perceptions of procedural justice from the applicants, such that applicants in the reverse-order and
secondary task conditions will report lower perceptions of procedural justice compared to those in the no manipulation condition.

Hypothesis 4b: Perceived cognitive load will mediate the relationship between imposing cognitive load and perceptions of procedural justice. More specifically, imposing cognitive load will be associated with greater perceived cognitive load, which in turn will be associated with lower procedural justice.

While the above relationships are likely to occur for applicants regardless of whether they use deceptive IM, they will likely be stronger for those that are instructed to use deceptive IM during the job interview. Applicants instructed to use deceptive IM may be more likely to pay greater cognitive attention towards deceptive IM, as a result of deceptive IM becoming more salient to their goals of presenting themselves favourably during the interview (Kanfer & Achermann, 1989). These same applicants may also experience second thoughts about the appropriateness of their strategy, because experiencing higher cognitive load is likely to have them question whether they have adequate mental capacity to effectively use deceptive IM, which would further deplete their cognitive resources. Therefore, applicants that are instructed to use deceptive IM may be especially attentive to the violation of procedural justice from having less opportunities to perform well.

Hypothesis 5a: Instructions to be honest vs. use deceptive IM will moderate the relationship between imposing cognitive load onto applicants and perceptions of procedural justice, such that the negative relationship will be stronger for applicants that are instructed to use deceptive IM.

Hypothesis 5b: Instructions to be honest vs. use deceptive IM will moderate the indirect relationship between imposing cognitive load onto applicants and perceptions of
procedural justice, such that the negative indirect relationship between imposing cognitive load and procedural justice (as mediated by perceived cognitive load) will be stronger for applicants that are instructed to use deceptive IM.

**Interview Anxiety.** The study also explores how imposing cognitive load influences state interview anxiety (i.e., feeling of anxiety at a specific moment in the interview; Powell et al., 2018), which is distinct from interview-specific trait anxiety (i.e., disposition to experience anxiety; McCarthy & Goffin, 2004). During job interviews, where applicants may be highly motivated to use IM to generate more favourable impressions towards interviewers (Bourdage et al., 2018), experiencing interview anxiety has shown to be negatively related to interview performance ratings (Powell et al., 2018). The meta-analytic finding is in line Schlenker and Leary (1985)’s proposition that individuals are more likely to be anxious during interpersonal situations when they are highly motivated to create an impression towards the target, yet they feel that their ability to do so is compromised (Schlenker & Leary, 1985). Consequently, I predict that imposing cognitive load onto applicants will tend to positively increase interview anxiety, because the greater perceived cognitive load that applicants experience as a result would prevent them from paying greater attention towards their behaviour. Therefore, these applicants will be more likely to perceive that their ability to use behavioural tactics, such as deceptive IM, is more heavily compromised as a result of experiencing higher perceived cognitive load.

**Hypothesis 6a:** Imposing cognitive load will significantly increase perceptions of interview anxiety from the applicants.

**Hypothesis 6b:** Perceived cognitive load will mediate the relationship between imposing cognitive load and perceptions of interview anxiety of applicants. More specifically,
imposing cognitive load will be associated with greater perceived cognitive load, which in turn will be associated with higher interview anxiety.

In addition, the above relationships will be stronger for applicants that use deceptive IM compared to those that are honest. Anxiety within workplace settings as a whole have shown to be associated with cognitive interference, such as attention, and informational processing, and task inhibition (Eysenck et al., 2007; McCarthy et al., 2016). According to McCarthy et al. (2016), the association is especially strong for tasks that require quick, and immediate cognitive processing. This is important to note because deceptive IM is thought to be more cognitively demanding than honest behaviour, specifically due to the greater use of these more automatic cognitive processes (van’t Veer et al., 2014; Vrij et al., 2008; Walczyk et al., 2013). Therefore, applicants that use deceptive IM will be more likely to perceive that their ability to generate a desired impression towards the interviewer is compromised (Schlenker & Leary, 1985) as a result of experiencing higher cognitive load, which will thereby increase perceptions of interview anxiety.

Hypothesis 7a: Instructions to be honest vs. use deceptive IM will moderate the relationship between imposing cognitive load onto applicants and perceptions of interview anxiety, such that the positive relationship will be stronger for applicants that are instructed to use deceptive IM.

Hypothesis 7b: Instructions to be honest vs. use deceptive IM will moderate the indirect relationship between imposing cognitive load onto applicants and perceptions of interview anxiety, such that the positive indirect relationship between imposing cognitive load and interview anxiety (as mediated by perceived cognitive load) will be stronger for applicants that are instructed to use deceptive IM.
Organizational Attraction. A substantial concern that organizations may have towards the process of imposing cognitive load is how it influences applicants’ perceptions of organizational attraction. Research has shown that applicants tend to form salient initial impressions on the attractiveness of organizations during the recruitment process (Rynes & Barber, 1990). Consequently, these impressions have shown to be highly influential in their decisions to accept job offers (Powell & Goulet, 1996). These perceptions of attractions come from not just functional characteristics (e.g., salary, work-life balance), but also from how different aspects of the recruitment process symbolize “traits” or “attributions” of an organization (Bangerter et al., 2012; Highhouse et al., 2009; Lievens & Highhouse, 2003). The latter is particularly relevant in the context of imposing cognitive load onto job interviews, because the cognitive load manipulation may serve as signals as to the attributes of an organization. More specifically, cognitive load manipulations are likely to play an important role in how applicants perceive the similarity of the organization’s values and goals in compared to their own (Rentsch & McEwen, 2002), and thereby influence perceptions of organizational attractiveness.

However, the effects of these cues from the cognitive load manipulations on organizational attractiveness are likely to differ among applicants that are instructed to use honest behaviours or deceptive IM. Based on Signalling Theory, certain applicants may try to gather organizational cues to adapt their behaviours to obtain a job (Bangerter et al., 2012). Deceptive IM serves as a way to modify an applicant’s behaviour in order to align with these organizational cues, in order to return signals to the organization that they are a suitable candidate (Gilmore et al., 1999; Levashina & Campion, 2006). It is likely that imposing cognitive load makes it more cognitively taxing when applicants search for these cues, and make
it harder for them to adapt to their behaviours. Consequently, these applicants may perceive that those detriments towards these processes are reflective of the organization’s broader values in penalizing dishonesty, and thereby perceive greater incongruencies with their own values. On the other hand, applicants who are instructed to be honest are unlikely to face similar detriments during the interview, because they are less likely to adapt their behaviours based on organizational cues when responding honestly. Therefore, imposing cognitive load is unlikely to have significant effects on organizational attraction for applicants who are honest.¹

Hypothesis 8a: Instructions to be honest vs. use deceptive IM will moderate the relationship between imposing cognitive load onto applicants and perceptions of organizational attraction. Among applicants instructed to use deceptive IM, interviews that impose cognitive load will tend to elicit significantly lower perceptions of organizational attraction compared to those that do not. However, among applicants that are instructed to be honest, there will be no significant differences in perceptions of organizational attraction.

Hypothesis 8b: Instructions to be honest vs. use deceptive IM will moderate the indirect relationship between imposing cognitive load onto applicants and perceptions organizational attraction, as mediated by perceived cognitive load. Among applicants instructed to use deceptive IM, imposing cognitive load will be positively associated with perceived cognitive load, which in turn will negatively relate to perceptions of

¹ The rationales for Hypotheses 8a and 8b are solely based on how cognitive load may limit their behaviours and cognitions during the interview, and thereby influence organizational attraction. This is because participants are specifically instructed to either be honest or use deceptive IM, regardless of which behavioural tactics they would be motivated to use in a real interview setting. However, within actual interview settings, imposing cognitive load may actually lead to higher perceptions of organizational attraction among applicants that are both honest and tend to use less IM tactics in general. This is because imposing cognitive load may provide a signal to the applicant that the organizational places importance honesty and fairness, which may be congruent with their own values.
organizational attraction. However, there should be no significant interaction effect among applicants instructed to be honest.

**Detecting Deceptive IM**

One of the substantial ways in which cognitive load manipulations can benefit job interviews is by increasing the ability of interviewers in detecting deceptive IM. Subsequently, interviewers may be able to have more accurate evaluations of applicant qualifications and skills. Additionally, increasing the detection rates may also help organizations penalize applicants that use deceptive IM, which has not shown to be the case in the literature (Melchers et al., 2020). This will also help organizations in ensuring that their job interviews are fairer and more equitable to honest applicants.

However, previous research on detecting deceptive IM within job interviews has not shown very promising results. In Reinhard et al. (2013)’s study, participants who classified one-minute video clips of applicants as truth-tellers or liars were correct only 52.4% of the time, which is marginally above chance levels. Furthermore, Roulin et al. (2015)’s results across multiple studies indicated that participants, regardless of their interview experience, are unable to detect deceptive IM well beyond chance levels. Even individual differences in cognitive ability and traits related to social sensitivity (e.g., honesty-humility) did not independently predict higher overall IM detection accuracy (Roulin, 2016), which was below chance level for half of the participants. These findings are also comparable to a series of meta-analyses on lie detection within various settings by Bond & DePaulo (2006), which indicated that the average correct detection rate for deception was a meagre 54%.

There are many possible reasons as to why the detection rates for deceptive IM are low. Although the current study cannot explore all of these, the CLT framework may provide some
insight. Previous studies have demonstrated that behavioural and verbal cues of deceptive behaviour are rather subtle in standard conditions, even if they are statistically significant (DePaulo et al., 2003; Sporer & Schwandt, 2006; Zuckerman et al., 1981). Observing subtle cues to detect deceptive IM would therefore require selective attention from interviewers, which would be made difficult by simultaneously having to co-ordinate and ask interview questions, making it a rather inaccurate and a cognitively taxing process. However, much of the differences in the behavioural and the verbal cues can be attributed to the more deliberate and cognitively demanding aspects of deception compared to truth telling (Vrij et al., 2008; Walczyk et al., 2014). In light of this, imposing cognitive load onto applicants may help amplify the differences in behavioural and verbal cues among applicants who engage (and do not engage) in deceptive IM, and subsequently make detecting deceptive IM more accurate in job interview settings. The approach has shown to be effective within other interview contexts, as Vrij et al. (2017)’s meta-analysis indicated that imposing cognitive load onto applicants increased detection accuracy rates of deception from 34% to 63% ($d = 0.94$, $p < .05$).

Given these meta-analytic results within other interview contexts, I predict that interviewers will be more likely to detect deceptive IM with greater accuracy for applicants within job interviews that imposes additional cognitive load. Applicants who use deceptive IM under higher cognitive load, as a result of the interview imposing additional cognitive load, may also be more likely to try reducing extraneous cognitive load through behavioural means (e.g., averting gaze, reducing body movements; Walczyk et al., 2014). This is important to note because deception is a cognitively demanding task (Lee et al., 2009; Walczyk et al., 2014). At the same time, the unintentional behaviours of applicants, as a result of engaging in deceptive behaviour, have shown to be more pronounced when experiencing greater cognitive load (Vrij et
al., 2006; Vrij et al., 2008). Nevertheless, even if imposing cognitive load onto applicants increases interviewers’ detection rates, the rates have to be significantly and practically higher than chance levels in order to have practical utility within job interview settings. Again, because the behavioural and verbal cues can be amplified for applicants using deceptive IM under higher cognitive load, it is likely that imposing cognitive load onto applicants will result in detection accuracy rates of deceptive IM above chance levels.

Hypothesis 9a: Interviewers will detect deceptive IM with greater accuracy for the interviews that impose cognitive load onto applicants, compared to interviews that do not.

Hypothesis 9b: For the interviews that impose cognitive load onto applicants, the accuracy rate of detecting deceptive IM will be above chance levels.

**Interview Performance**

Exploring the role of cognitive load in interview performance is vital in determining whether the cognitive load manipulations effectively penalize applicants’ use of deceptive IM, especially when their use of deceptive IM usually does not have a negative effect on their evaluations (Melchers et al., 2020). It is also plausible that interviewers may notice certain behaviours from applicants when they use deceptive IM under higher cognitive load (e.g., greater hesitations with their responses; Vrij et al., 2008), without realizing that it is a sign of deceptive IM use. This is especially important to note when the detection rates of deceptive IM are low (Roulin, 2016).

In the study, I propose that imposing cognitive load onto applicants will moderate the indirect relationship between instructions to be honest vs. to use deceptive IM and interview performance, as mediated by perceived cognitive load. Recent reviews on the IM literature within job interview settings suggest that interviewers and evaluators do not punish the use of
deceptive IM, given its insignificant relations to interview performance (Melchers et al., 2020; Ho et al., 2021). Likewise, I predict that there will be no significant differences in interview performance among honest and deceptive applicants during interviews that do not impose cognitive load. However, when imposing cognitive load onto applicants, applicants that use deceptive IM will show lower interview performance ratings than those that are honest. Given how deceptive behaviour as whole is usually deliberate (Walzyck et al., 2003), imposing cognitive load onto applicants would make them less able to focus on communicating their responses through deceptive IM, due to their greater perceived cognitive load. In addition, unlike applicants that are honest, applicants that use deceptive IM would also have less cognitive resources to control for signs of nervousness that may arise from the deceptive IM (Sporer, 2016), especially when they may also have to morally justify using the behaviour (Shalvi et al., 2011). Therefore, imposing cognitive load would also be more detrimental towards the performance of applicants using deceptive IM over those that are honest, because imposing cognitive load depletes the working memory. On the other hand, honest applicants only have to retrieve and communicate truthful information from their long-term memory. Even if these applicants had to generate new information (as in situational interview questions), they would not have to deliberately monitor and ensure that their responses are truthful.

Hypothesis 10a: Imposing cognitive load onto applicants will moderate the relationship between instructions to be honest vs. to use deceptive IM and interview performance ratings. There will be no significant differences in interview performance for interviews that do not impose cognitive load onto applicants. However, for interviews that impose cognitive load, applicants who are instructed to be honest will tend to receive higher performance ratings than those that are instructed to use deceptive IM.
Hypothesis 10b: Imposing cognitive load onto applicants will moderate the mediated relationship between instructions to be honest vs. to use deceptive IM and interview performance ratings through perceived cognitive load. For interviews that do not impose cognitive load onto applicants, there will be a positive indirect relationship between the use of deceptive IM and interview performance ratings. However, for interviews that impose cognitive load, there will be a negative indirect relationship between the use of deceptive IM and interview performance ratings.

**Comparing the Two Methods of Imposing Cognitive Load**

The study aims to test the proposed hypotheses by imposing cognitive load through two types of cognitive load manipulations: the reverse-order technique, and the recall-based secondary task. The comparison of the two approaches are introduced as research questions, because there is very little research that directly tests different ways to impose cognitive load. While a number of studies have used the reverse-order technique (e.g., Vrij et al., 2008; Vrij et al., 2012) and the recall-based secondary task (e.g., Shalvi et al., 2012; van’t Veer et al., 2014), there currently lacks research that compares 1) the effectiveness of the two approaches in their ability to impose extraneous cognitive load, and 2) changes in applicant reactions. This is important to note because the two approaches target very different cognitive processes within the short-term memory (i.e., content generation and recall) in order to impose extraneous cognitive load, and it is unknown whether one approach may be more effective than the other. At the same time, it is possible that the reverse-order technique may impose greater cognitive load onto applicants compared to the recall-based secondary task, because there has been concerns raised about the former imposing too much cognitive load at the detriment of honest applicants (Fenn et
al., 2015). Nevertheless, the reverse-order technique has also been examined more thoroughly (Vrij et al., 2017).

Research Question 1: How do the reverse-order technique and the recall-based secondary task compare in their effectiveness for increasing perceived cognitive load among applicants?

Additionally, research has yet to explore how applicants react to either type of cognitive load manipulations within any research domain. The issue is quite relevant towards determining their practical utility, because certain manipulations that elicit substantially negative reactions from applicants may have greater negative consequences for organizations (Bauer et al., 2001; Gilliland, 1993). Cognitive load manipulations that are especially penalizing onto honest applicants are more likely to violate procedural justice rules, and also result in lower organization attraction among more qualified and desired applicants. Furthermore, although interview anxiety is negatively associated with various cognitive processes within workplace contexts (McCarthy et al., 2016), research has yet to explore whether interview anxiety is more negatively associated with certain cognitive processes than others.

Research Question 2: Are there differences in how the reverse-order technique and the secondary task relate to a) procedural justice, b) interview anxiety and c) organizational attraction among applicants?

Summary of Hypotheses and Research Questions

To summarize, the study explores whether imposing cognitive load through the reverse-order and the secondary task manipulations increase perceived cognitive load of applicants. I also test whether imposing cognitive load influences applicant reactions and outcomes (i.e., perceptions of procedural justice, interview anxiety, organizational attraction, and interview
performance), as well as how perceived cognitive load mediates these relationships.

Additionally, I test the effects of imposing cognitive load on detection rates of deceptive IM.

Finally, I explore these consequences of imposing cognitive load amongst applicants instructed to be honest applicants versus those instructed to use deceptive IM.
Chapter 2: Method

The study used a 2 x 3 design, with a total of six conditions. More specifically, participants were instructed to be either honest or to use deceptive IM. Furthermore, there were three conditions that either imposed additional cognitive load using one of two ways (i.e., reverse-order technique, secondary recall-based task), or did not impose additional cognitive load (i.e., no manipulation). Participants were randomly be assigned to one of the six conditions.

Participants

The study used several methods to determine the number of participants needed to obtain sufficient power (.80). For ANOVA tests with six groups, as well as partial $\eta^2 = .04$ (i.e., a small to medium effect size)\(^2\), the study required at least 235 participants. The remaining tests apply to the path analysis, which should be taken with caution as these tests do not account for cluster-adjusted standard errors. First, the power analysis on G*Power (Erdfelder et al., 1996) for goodness-of-fit $X^2$ tests with $w = .30$ and $df = 12$ indicated that the study required at least 193 participants to obtain sufficient power. Also using G*Power, the analysis for $F$ tests on multiple regressions with an effect size of $f^2 = .1$ and five predictors (accounting for the maximum number of predictors for an outcome variable, including moderators) indicates that the study required at least 134 participants to obtain sufficient power for a single regression model. Lastly, the power analysis guidelines on Preacher et al. (2007)’s model two indicates that the study required slightly above 200 participants to test moderated mediation effects through non-bootstrapping methods when the main path coefficients are approximately .30.

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\(^2\) Overall, I opted to choose a more conservative estimate of the effect sizes during the power analysis, rather than basing them off of previous studies on cognitive load and interviews. This is because many of these studies tend to take place in experimental settings, where it becomes difficult to generalize and compare effect size estimates (Fern & Monroe, 1996). Furthermore, the different motivational factors within job interviews compared to other interview settings (e.g., forensic) may influence the magnitude of the relationships.
After considering all the criteria to achieve sufficient power, the study collected data from 290 undergraduate student participants through the Research Participation System at the University of Calgary. During the last two years, participants must have 1) participated in at least one job interview, and 2) had work experience (full-time or part-time). Participants that did not complete the study or filled out conflicting information on their names and session times \((n = 21)\), reported incorrect cognitive load conditions \((n = 4)\) or behavioural strategies \((n = 15)\) later in the interview, did not meet study requirements to participate \((n = 3)\), or later withdrew consent \((n = 1)\) were removed from the data analysis. Subsequently, participants that did not take the study seriously \((n = 3)\), scored low on the careless response items (less than 3 correct responses out of five; \(n = 1)\), or indicated a low motivation to perform during the interview \((n = 4)\) were also removed from the data analysis. The final sample consisted of 238 participants (84.9% female), with an average age of 20.33 years \((SD = 4.26)\). The majority of participants indicated that they had either one to two (30.3%) or three to four (30.3%) years of total work experience. At the time of the study, the majority of participants were currently employed part-time (59.7%). Three participants indicated that they were currently employed full-time (1.3%), and the remainder of participants were not currently employed. While previous concerns have been raised on the use of student participants within interview settings (Bourdage et al., 2020), it must be noted that most rationales for the hypotheses are mainly based on applicant cognition and mental capacity. Therefore, the student sample is likely to be more generalizable to the broader applicant population, because individual differences between university student and non-university student samples (Lee & Ashton, 2018; Bourdage et al., 2020) are unlikely to substantially influence most of the findings.
In addition, the study hired six undergraduate research assistants who served as the interviewers. All six interviewers were female, with an average age of 22 years ($SD = 1.79$). The interviewers had an average of 5.67 years ($SD = 2.73$) of total work experience. Three of the interviewers had prior interviewing experience at an actual organization, with an average experience of 1.08 years ($SD = 0.88$).

**Measures**

**Perceived Cognitive Load**

Although rating scales have been shown to be reliable and valid compared to other methods (Sporer, 2011), the more established one-item scales are still likely to pose psychometric issues (Klepsch et al., 2017). Therefore, the intention of the study was to provide participants with multiple measures to assess cognitive load, and select one measure based on their reliability and validity (refer to Analysis for these steps). Refer to Appendix C for these items.

First, the study provided Paas and Merrienboer (1994)'s one-item mental effort scale (i.e., “How much mental effort did you use in the interview?”) with nine response options ($1 = $ Very, very low mental effort, $9 = $ Very, very high mental effort). The study also used the one-item Mental Demands subscale from NASA-TLX (Task Load Index; Hart & Staveland, 1988) on a 20-point scale ($0 = $ Very Low, $20 = $ Very High). The NASA-TLX assesses six different types of perceived workload that employees commonly experience in the workplace, but it is thought that only the Mental Demands subscale (i.e., “How mentally demanding was the interview?”) highly corresponds to cognitive load (van Gog & Paas, 2008; Naismith et al., 2015). Both one-item measures have been used to evaluate cognitive load in previous research (for a review, see van Gog & Paas, 2008).
The study also used the intrinsic and extrinsic cognitive load subscales from Klepsch et al. (2017)’s cognitive load scale (\(\alpha = .84\)), which consists of five items in total (1 = Strongly Disagree, 7 = Strongly Agree). The items were modified to specifically refer to the interview (e.g., “During the interview, it was exhausting to generate responses to the questions”). The study excluded the germane load subscale because it demonstrated considerably lower reliability (Klepsch et al., 2017), and the content of the items do not align with the objectives of the current study. Furthermore, the existence of germane load has been debated, with some researchers suggesting that germane load is just another form of Intrinsic load (Leppink et al., 2013).

Lastly, the study used 11 items that were created by the author to measure overall cognitive load specifically within job interviews (termed Interview-Specific Cognitive Load [ISCL]; \(\alpha = .87\)). The ISCL items were created based on Vrij et al. (2010), which notes six ways in which cognitive load can affect deception: Formulating a lie, monitoring and controlling behaviour, monitoring actions of interviewer, reminding themselves to lie, supressing the truth, and more deliberate processing. The items were generated based on the first five ways, by also considering 1) how those cognitive processes (including related ones) could emerge for honest applicants as well, and 2) other research and theories on deception and cognition (e.g., Lane & Wegner, 1995; Sporer & Schwandt, 2006; Zuckerman et al., 1981). Based on the notion that mental effort can be considered to be the key element of cognitive load (Paas & Merrienboer, 1994; van Gog & Paas, 2008), the items ask participants to rate the extent of mental effort perceived for different cognitive processes towards answering interview questions. An example item is the following: How much mental effort did you use in the interview to create your responses to the questions? Refer to Appendix Q for the construct map created to generate the items.
**Procedural Justice**

The study used Bauer et al. (2001)’s Selection Procedural Justice scale ($\alpha = .90$; e.g., “The interview allowed me to show what my job skills are”), which has previously been used for job interview research (e.g., Horn & Behrend, 2017; Law et al., 2016; Appendix E). The study omitted the reconsideration opportunity and feedback facets within the structure higher-order factor, because the mock interview did not inform participants of their interview performance. Furthermore, the study also omitted consistency from the social higher-order factor because participants had no way of knowing whether the interview was administered similarly to other participants. The scale had a total of 29 items ($1 = $ Strongly Disagree, $5 = $ Strongly Agree).

**Interview Anxiety**

The study used McCarthy and Goffin (2004)’s Items for the Measure of Anxiety in Selection Interviews (MASI; Appendix I; $\alpha = .95$) for the participants. The items were modified to refer to state anxiety experienced during the interview portion of the study (e.g., “During the interview, I became so apprehensive that I was unable to express my thoughts clearly.”). The MASI consisted of five facets: Communication anxiety, appearance anxiety, social anxiety, performance anxiety, and behavioural anxiety. The self-report scale had a total of 28 items ($1 = $ Strongly Disagree, $5 = $ Strongly Agree). The study uses the self-report measure to test the hypotheses. As a supplemental measure not used to test the hypotheses, the study used two items from Feiler (2014) to obtain interviewer-reports of state interview anxiety (i.e., “The applicant felt anxious during the interview”, and “The applicant experienced a high degree of apprehension in the interview”; $\alpha = .87$).

**Organizational Attraction**
The study used the *General Attractiveness* and *Intentions to Pursue* facets from Highhouse et al. (2003)’s Organizational Attraction scale ($\alpha = .95$; Appendix J). The study omitted the *Prestige* facet because the mock-recruitment design does not provide cues pertaining to organizational prestige towards the participants. The scale had a total of 10 items ($1 = \text{Strongly Disagree}$, $5 = \text{Strongly Agree}$; e.g., “*For me, this company would be a good place to work*”).

**Deceptive and Honest IM**

For the participant responses, the study used the full deceptive IM Scale from Levashina and Campion (2007; $\alpha = .98$), which consisted of four facets: Slight Image Creation, Extensive Image Creation, Image Protection, and Ingratiation (Appendix F). The self-report measure contained a total of 54 items ($1 = \text{To no extent}$, $5 = \text{To a very great extent}$; e.g., “*I tried to adjust my answers to the interviewer’s values and beliefs*”). The study used a 16-item version of the scale for the interviewers to complete only when they thought the participant was using deceptive IM (i.e., answered “yes” to whether participants primarily used deceptive IM. Refer to Deceptive IM Detection in the following section). The study also used the 12-item version of the honest IM scale from Bourdage et al. (2018) as a supplementary measure for the participants ($1 = \text{To no extent}$, $5 = \text{To a very great extent}$; $\alpha = .87$), which consisted of three facets: Self-Promotion, Defensive, and Ingratiation (Appendix G). The honest IM scale is used to test the convergent validity of the selected cognitive load scale.

**Deceptive IM Detection**

Deceptive IM detection was measured using a modified approach from Roulin (2016) and Roulin and Ternes (2019; Appendix K). More specifically, the interviewers were provided with a definition of deceptive IM immediately after the mock interview (Roulin, 2016), and the
interviewers answered “yes” or “no” to whether the participant primarily used deceptive IM. The interviewers were asked to make a judgement for the entire interview, instead of being asked specifically for each interview question, given how they were aware that applicants were given instructions to be honest or use deceptive IM during the entire interview. The question, along with the corresponding information, was framed to emphasize detecting deceptive IM instead of honest behaviour, as there are significant differences in the detection rates based on the behaviours that the interviewers look for (Vrij et al., 2017). The accuracy rate of detecting deceptive IM was assessed by dividing the proportion of correct responses over all responses (the chance level being 50%).

**Interview Performance Ratings**

The study used the five-item scale measuring overall interview evaluation ($\alpha = .94$) from Roulin et al. (2015), using a five-point scale (1 = Strongly Disagree, 5 = Strongly Agree; Appendix L). An example item is the following: *I would give a good evaluation to this applicant.* As a supplementary measure, the study also collected performance ratings for each interview question, which were not used in the analyses of the current study.

**Capacity to use Deceptive IM**

The study used multiple separate measures to assess perceptions of mental capacity towards the use deceptive IM. The primary purpose of these scales were to help validate the selected cognitive load scale, by exploring 1) the convergent validity between the cognitive load scale and these existing measures, and 2) whether cognitive load provides incremental variance over these measures in predicting important applicant outcomes. In line with the approach used by Bourdage et al. (2020), the study used the three-item Perceived Behavioural Control measure (Ajzen, 1991) which were adapted to a job interview context (1 = Strongly disagree, 5 =
Strongly agree; $\alpha = .90$). The study also used the three-item Capacity to Fake measure ($I = \text{Strongly disagree, } 5 = \text{Strongly agree; } \alpha = .81$) from Law et al. (2016). Furthermore, the study used Schneider and Goffin (2012)’s Perceived Ability to Deceive measure, which consisted of five response options for each item ($\alpha = .86$). Refer to Appendix D for these items.

**Willingness and Attitudes towards Faking**

Also as supplementary measures, the study assessed Willingness to Fake and Attitudes towards Faking. To assess Willingness to Fake, we used the Willingness to Fake measure ($\alpha = .74$) from Law et al. (2016; $I = \text{Strongly disagree, } 5 = \text{Strongly agree}$). These items were used to obtain a better understanding of the convergent validity in the selected cognitive load scale. The study removed the item “I did not want to be caught misleading the interviewer” because the item correlations were inadequate. Furthermore, it is highly plausible that the item heavily confounds with the study design, as the content of the item is much less applicable towards participants instructed to be honest. The study also used Beck and Ajzen (1991)’s Attitudes measure to assess Attitudes towards Faking ($\alpha = .81$). Refer to Appendix D for these items.

**Manipulation & Attention Checks**

The study inserted five careless response items (e.g., “Please select strongly disagree below”) in between items for the main study measures (Meade & Craig, 2012). Participants who answered three or more items incorrectly were removed from the data analysis. Furthermore, in order to measure how seriously and willingly participants performed during the interview, the study used a modified version of Barrick et al. (2010)’s item that measures applicant seriousness (i.e., “After the interview, I answered the survey question seriously”). Participants who reported three or lower on the item were removed from data analysis. The study also used Arvey et al. (1990)’s 10-item motivation to perform scale ($I = \text{Strongly Disagree, } 5 = \text{Strongly Agree}$), with
the items altered to specifically refer to the interview (e.g., “I wanted to do well on the interview”; $\alpha = .91$), and participants who scored less than two were removed from data analysis. Lastly, at the end of the study, participants were asked again to provide consent for the use of their data. Refer to Appendix M for these items.

**Demographic & Miscellaneous Items**

Participants were instructed to indicate their name and the time/date of their study session on the consent form prior to the mock interview, and also on the questionnaire that was provided immediately after the interview. At the end of the questionnaire, participants were also asked of their age, gender, and their prior work experience. Refer to Appendix N for these items.

**Procedure**

Prior to running the interviews, the interviewers participated in a three-hour training session explaining the procedures for the various conditions. These procedures included topics such as co-ordinating the interviews, presenting the cognitive load manipulations, and compensating participants.

There were two stages to the study procedure. First, participants first participated in a mock job interview through Zoom. Subsequently, they answered an online questionnaire pertaining to their experiences during the interview. Each interested participant was assigned a Zoom session at a specific time with the interviewer. At the start of the Zoom session, the interviewer ensured that participant were eligible for the study. More specifically, participants were asked whether they had work experience and experience in at least one job interview during the last two years. Furthermore, the interviewer checked whether participants had a working webcam and a microphone. Participants then received an electronic consent form provided through Qualtrics, which contained the consent form on the very first page.
After providing consent (Appendix O), participants were randomly assigned to one of the three cognitive load conditions (i.e., no manipulation, reverse-order, and secondary task). Participants were then given a series of instructions for the mock interview through the same Qualtrics form. More specifically, participants were told that they would be partaking in a mock job-interview for a clothing store retail sales associate, where they were also given a job description for the position. Participants who were assigned to the conditions that imposed cognitive load through the reverse-order technique were also informed that it was important to answer the interview questions in the provided order. Furthermore, participants who were assigned to the conditions that imposed cognitive load through the secondary-based recall task were provided additional instructions on how the task would appear alongside the interview questions. Afterwards, all participants regardless of the cognitive load condition were asked to use one of two behavioural strategies (i.e., being honest vs. using deceptive IM) during the entire interview. The instructions for the honest and deceptive IM strategies were derived from Roulin (2016). Additionally, participants were also informed that they should not directly tell the interviewer of the strategy, as the interviewers will not be aware of the information.

The mock interview began after the interviewers clarified any remaining questions the participants had on the procedures. The mock interview consisted of six questions on participants’ prior work experiences, which were mainly derived from Law et al. (2016), Law (2021) and Wingate et al. (2019). For each question, the interviewer provided a series of follow-up questions, and the interviewers rated the performances of participants after each question. In the control condition (i.e., no manipulation), participants answered the questions in an interview setting that does not impose additional cognitive load. The interviews for participants in the reverse-order technique conditions were identical to those in the control conditions, except the
follow-up questions were presented in reverse chronological order. Participants who tried to avoid answering the questions in the reverse chronological order were reminded to answer them in the order provided. Furthermore, participants in the secondary recall-based task conditions were first asked to memorize a series of five items pertaining to a clothing store (e.g., inventory, size medium, t-shirt, clearance, opening), which the interviewers stated once. These participants were then asked the interview question, along with follow-up questions presented in the regular ordering. Afterwards, participants were asked to verbally recall the items that they received previously. The process repeated for every interview question. Immediately after the participant finished answering the interview questions, the interviewers 1) rated the overall interview performance, and 2) determined whether the participant was being honest or using deceptive IM.

After the mock interview, participants received a new link to a Qualtrics questionnaire that contained questions pertaining to their experiences during the mock interview. Participants were asked to complete the questionnaire immediately after the interview, and the interviewer ended the Zoom session. During the questionnaire, participants were asked of their perceived cognitive load during the interview, followed by their capacity to engage in deceptive IM and procedural justice towards the interview. Participants were subsequently asked to complete measures on their willingness to engage in deceptive IM\(^3\), their use of deceptive and honest IM, as well as their perceptions of interview anxiety and organizational attraction. Participants then answered the manipulation check items, as well as items pertaining to their demographic information. Participants were also asked again to provide their consent for the use of their data. Lastly, participants were debriefed electronically (Appendix P). The study was expected to take

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\(^3\) As a reminder, the capacity and the willingness to fake, along with their use of honest IM, were supplementary measures. The short deceptive IM scale and the short interview anxiety scale completed by the interviewers were also supplementary.
approximately an hour, and participants were provided with 1.0 course credit for their participation.

Around the same time, the interviewers were first asked whether they thought the participant was using deceptive IM. The interviewers completed the short deceptive IM scale if they indicated yes to the first question. The interviewers then evaluated the overall interview performance of the participants, as well as their perceptions of the participants’ interview anxiety using a shortened version of the interview anxiety scale.

**Analyses**

All analyses were performed on R and RStudio. Prior to running any analyses of interest, the study first checked for implausible values for all continuous and categorial items. Based on these checks, none of the participants were removed from the data. After these steps, the filtering process mentioned under Participants was applied.4

**Selecting and Validating a Cognitive Load Scale.** Given the measurement concerns with the existing one-item measures to assess cognitive load, the intention of the study was to select either the modified Klepsch et al. (2017) measure or the original scale created from scratch (ISCL). The following steps used to select a measure were created a priori. First, I compared the Cronbach’s alpha of the two measures to determine whether the values were adequate. Subsequently, the study ran Exploratory Factor Analyses (EFA) to determine the factor structure of the two scales, using the principal axis factoring method and direct oblimin rotation. In particular, the EFA served to understand whether the two-factor structure of Klepsch et al.

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4 The study intended to not remove any participants based on multivariate outliers prior to analyses, because they would not reflect practically implausible relationships among the continuous variables in the study. Furthermore, indices such as the mahalanobis distance lacks robustness due to a profound masking effect (Leys et al., 2018). However, as a precaution, I still calculated the mahalanobis distance for the continuous outcomes in the study hypotheses (i.e., perceived cognitive load, interview performance, procedural justice, self-rated interview anxiety, organizational attraction) among participants in the final sample (N = 238). None of the participants exceeded the cutoff of $\chi^2(4) = 18.47, p < .001$, which meant that there were no multivariate outliers in the final dataset.
(2017)’s measure also emerged within a job interview context. The factor structure was determined by the number of eigenvalues that were greater than 1. Afterwards, I ran intercorrelations with all of the cognitive load measures to determine the convergent validity of the longer scales. The study was especially interested in how the two longer measures related to Paas and Merrienboer (1994)’s measure and the mental demand item from the NASA-TLX (Hart & Staveland, 1988), as these measures have been more extensively validated (particularly with rating sensitivity) in the literature. A measure was selected after careful consideration of these analyses.

I then performed a series of hierarchical regressions to test the incremental validity of the selected measure in predicting not only the focal outcomes of the study (interview performance, procedural justice, interview anxiety, and organizational attraction), but also other important outcomes (IM use, willingness to fake, attitudes towards faking). These regressions were important to verify that the selected cognitive load measure corresponds to existing theory on cognitive load and deception, especially considering how applicant cognition (and more specifically, cognitive ability) is thought to highly relate to the capacity to use deceptive IM (Levashina & Campion, 2006). In step 1, the existing measures to assess capacity to use deceptive IM were regressed to predict the outcomes. Step 2 added the cognitive load measure, and $F$ tests were performed to determine the significance of the change in the adjusted $R^2$. These regressions were performed for the entire sample, as well as among participants instructed to be honest and those instructed to use deceptive IM separately. Due to the exploratory nature of these analyses, the hierarchical regressions did not account for interviewer nesting. I subsequently ran correlations between perceived cognitive load, the measures assessing capacity to use deceptive IM, and the outcomes in the hierarchical regressions, also to better understand the nature of
perceived cognitive load as a construct. Refer to Appendix R for the full results of the scale development process.

**Hypothesis Tests.** I tested the hypotheses pertaining to direct effects and their interactions using two-way nested ANOVA tests (ML estimator), with the manipulations of cognitive load and instructions to use deceptive IM as the independent variables. The nested ANOVA tests used the interviewers as a random factor to account for any possible variances due to interviewer nesting among the participants. Furthermore, significant interaction effects were followed up with pairwise comparisons of estimated marginal means (adjusted for interviewer grouping) with Tukey HSD-adjusted significance tests. Hypothesis 9b was tested by assessing whether the 95% CI for the proportions of correct detections contained .50 (i.e., chance level), based on the estimated marginal means. As a supplementary analysis, I also provide an overall summary of the ANOVA results without accounting for interviewer nesting. I also compare the model fit (Likelihood Ratio Test) between the nested ANOVA and the non-nested ANOVA to determine whether the nesting effect was statistically significant.

I also ran two path-analytic models (partially and fully mediated models) based on Figure 1, in order to test for indirect and conditional indirect effects. The model fit indices of the two models were statistically compared. Although I also ran a model that only specified direct effects among the variables of interest, the model fit is not reported in the study because the variance-covariance matrix of the parameters was not a positive definite, containing at least one negative eigenvalue. Subsequently, the model was unable to properly generate many of the fit indices. Prior to running the analyses, I predicted that the partially mediated model would provide the best model fit for the data. However, a decision was made a priori to interpret the direct and
indirect path coefficients of the partially mediated model regardless of model fit, in order to establish which indirect relationships were fully- or partially-mediated.

All of the path analyses used Maximum Likelihood Robust (MLR) estimates. Furthermore, all continuous variables were standardized prior to running the path analyses. The three cognitive load conditions (i.e., no manipulation, reverse-order, and secondary task) were re-coded using indicator coding (Hayes & Preacher, 2014), using the no manipulation conditions as the referent. Conditional indirect effects were tested using the index of moderated mediation (IMM; Hayes, 2015). The path-analytic model accounted for interviewer nesting by using cluster-adjusted standard errors for all parameters, which is not compatible with bootstrapping approaches. However, considering how indirect and conditional indirect effect parameters are often not normally distributed (Hayes, 2015), I also describe the summary of the results using Maximum Likelihood bootstrapping with 5000 iterations as a supplementary analysis.

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5 The model fit indices presented in the results are all based on models that used cluster-adjusted standard errors.
Chapter 3: Results

Manipulation Check

Refer to Table 1 for the number of participants in each of the conditions. The manipulation of deceptive IM use (i.e., instructions to be honest vs. use deceptive IM) appeared to be effective, as participants who were instructed to use deceptive IM tended to significantly use more of the behaviour compared to those who were instructed to be honest, $t(236) = 14.55, p < .001, d = 1.89$.

Table 1

*Number of participants per each condition*

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<th>Reverse</th>
<th>Recall</th>
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<td>43</td>
<td>41</td>
<td>121</td>
</tr>
<tr>
<td>Deceptive</td>
<td>39</td>
<td>40</td>
<td>38</td>
<td>117</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>76</td>
<td>83</td>
<td>79</td>
<td><strong>238</strong></td>
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Selecting and Validating a Cognitive Load Scale

Refer to Appendix R for the full results of the scale development process. Overall, both Klepsch et al. (2017)’s scale and the ISCL demonstrated adequate reliabilities. Furthermore, the EFAs for both scales indicated that they each measured a single common component. However, the magnitude of the correlations between Klepsch et al. (2017)’s scale and the one-item cognitive load measures were larger compared to that of the ISCL. Therefore, I selected Klepsch et al. (2017)’s scale to assess perceived cognitive load for the hypothesis tests.

Subsequent tests of incremental validity for Klepsch et al. (2017) demonstrated that the scale predicts numerous outcome variables above and beyond that of measures assessing capacity to fake (i.e., interview performance, procedural justice, interview anxiety, organizational attraction, self-reported use of deceptive IM, and willingness to fake).
Furthermore, the intercorrelations between Klepsch et al. (2017)’s scale and the measures assessing capacity to fake supported the notion that perceived cognitive load is distinct from the latter. Refer to Table 2 for the descriptive statistics and the intercorrelations of the study variables.
Table 2
Descriptive Statistics and Intercorrelations of Study Variables

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<th>5</th>
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</tr>
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<td>5. IA (Self Eval.)</td>
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<td>-.23**</td>
<td>.25**</td>
<td>.43**</td>
<td>-.26**</td>
<td>(.95)</td>
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<td>.00</td>
<td>-.22**</td>
<td>.36**</td>
<td>.03</td>
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<td>.11</td>
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<td>.11</td>
<td>-.18**</td>
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<td>.18**</td>
<td>-.06</td>
<td>.30**</td>
<td>.19**</td>
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<td>(.98)</td>
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<td>.07</td>
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<td>.35**</td>
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<td>.40**</td>
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<td>-.03</td>
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<td>.04</td>
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<td>.08</td>
<td>.52**</td>
<td>-.19**</td>
<td>.32</td>
<td>-.07</td>
<td>-.07</td>
<td>.14*</td>
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<td>.00</td>
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<td>.27**</td>
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<td>-.17*</td>
<td>-.18**</td>
<td>.12</td>
<td>-.16*</td>
<td>.15*</td>
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<td>.06</td>
<td>.06</td>
<td>.23**</td>
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<td>-.01</td>
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<td>.17**</td>
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<td>17. IA (Interviewer Eval.)</td>
<td>2.51</td>
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<td>.01</td>
<td>.17**</td>
<td>.00</td>
<td>.16*</td>
<td>.01</td>
<td>-.32**</td>
<td>.05</td>
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Note. The correlations come from the entire final sample. Gender was coded as 0 = Male, and 1 = Female. 3. Cognitive Load refers to Klepsch et al. (2017)’s measure. IA = Interview Anxiety, Org. Attraction = Organizational Attraction, IM = Impression Management, CL (Paas) = Cognitive Load (Paas & Merrienboer, 1994), CL (MD) = Cognitive Load (Mental Demand subscale from NASA-TLX; Hart & Staveland, 1988), PBC = Perceived Behavioural Control, PATD = Perceived Ability to Deceive.

*p < .05, **p < .01.
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<td>8. Deceptive IM Use</td>
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<td>(.86)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. Attitudes</td>
<td>.22**</td>
<td>-.09</td>
<td>-.12</td>
<td>.28**</td>
<td>.55**</td>
<td>.39**</td>
<td>(.81)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. Willingness to Fake</td>
<td>.08</td>
<td>-.09</td>
<td>.04</td>
<td>.40**</td>
<td>.27**</td>
<td>.33**</td>
<td>.35**</td>
<td>(.74)</td>
<td></td>
</tr>
<tr>
<td>17. IA (Interviewer Eval.)</td>
<td>.00</td>
<td>.13*</td>
<td>.15*</td>
<td>-.14*</td>
<td>-.09</td>
<td>-.01</td>
<td>.02</td>
<td>.05</td>
<td>(.87)</td>
</tr>
</tbody>
</table>
Study Hypotheses

Nested ANOVAs (Direct Effects)

Table 3

Omnibus results of the nested ANOVAs

<table>
<thead>
<tr>
<th>df(F)</th>
<th>Perceived CL</th>
<th>Int. Performance</th>
<th>PJ</th>
<th>IA</th>
<th>OA</th>
<th>DIMaccuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>CL</td>
<td>(2, 227)</td>
<td>27.95**</td>
<td>1.29</td>
<td>6.70**</td>
<td>0.01</td>
<td>1.32</td>
</tr>
<tr>
<td>DIM</td>
<td>(1, 227)</td>
<td>13.47**</td>
<td>0.00</td>
<td>1.65</td>
<td>11.87**</td>
<td>0.13</td>
</tr>
<tr>
<td>Interaction</td>
<td>(2, 227)</td>
<td>0.25</td>
<td>0.13</td>
<td>1.70</td>
<td>0.24</td>
<td>9.59**</td>
</tr>
</tbody>
</table>

Note. CL = Imposing Cognitive Load, DIM = Instructions to use Deceptive IM, Perceived CL = Perceived Cognitive Load, PJ = Procedural Justice, IA = Interview Anxiety (Self-Rated), OA = Organizational Attraction, DIMaccuracy = Accuracy of Detecting Deceptive IM. *p < .05, **p < .01.

Refer to Table 3 for the omnibus $F$ tests of the nested ANOVAs. It must be noted that the results of the omnibus ANOVA tests do not change as a result of removing the interviewers as a nested random-effects factor, $a = .05$. Furthermore, the Likelihood Ratio Tests ($df = 1$) indicated that the model fits between the fixed-effects (without accounting for Interviewer nesting) and the random-effect models did not differ significantly, $p > .05$.

Perceived Cognitive Load. The cognitive load manipulations significantly affected perceptions of cognitive load, $F(2, 227) = 27.95, p < .01$. More specifically, participants in the reverse-recall conditions ($M = 5.31, SE = 0.15$) experienced significantly higher perceptions of cognitive load than those in the control conditions ($M = 3.94, SE = 0.15$), $t(227) = 7.34, p < .001$. Participants in the secondary recall-based task conditions ($M = 4.93, SE = 0.15$) also experienced significantly higher perceptions than those in the control conditions, $t(227) = 5.28, p < .001$. Therefore, Hypothesis 1 was supported. Furthermore, participants who were instructed to use deceptive IM ($M = 5.01, SE = 0.13$) tended to experience significantly higher perceptions of
cognitive load than those who were instructed to be honest ($M = 4.45$, $SE = 0.13$), $F(1, 227) = 13.47, p < .001$. Therefore, Hypothesis 2 was also supported. However, there was no significant interaction between imposing cognitive load and instructions to use deceptive IM, $F(2, 227) = 0.25, p = .778$. Therefore, Hypothesis 3 was not supported. Refer to Figure 3 for the marginal means of each study condition.

**Figure 3**

*Marginal means for Perceived Cognitive Load*

*Note.* CL = Cognitive Load. Error bars represent 95% CI. Honest = Instructions to be Honest, Deceptive = Instructions to use Deceptive IM.
**Procedural Justice.** The cognitive load manipulations significantly predicted perceptions of procedural justice, $F(2, 227) = 6.70, p = .001$. More specifically, participants in the reverse-order conditions ($M = 3.57, SE = 0.06$) tended to experience significantly lower perceptions of procedural justice compared to those in the secondary recall-based task conditions ($M = 3.83, SE = 0.06$), $t(227) = 3.61, p = .001$. However, there were no significant differences when comparing participants in the control conditions ($M = 3.70, SE = 0.06$) to those in the reverse-order ($t[227] = 1.88, p = .147$) or the secondary recall-based task conditions ($t[227] = 1.67, p = .218$). Therefore, Hypothesis 4a was not supported. Furthermore, instructions to use deceptive IM did not significantly affect perceptions of procedural justice, $F(1, 227) = 1.65, p = .200$. There was also no significant interaction between imposing cognitive load and instructions to use deceptive IM, $F(2, 227) = 1.70, p = .185$. Therefore, Hypothesis 5a was not supported. Refer to Figure 4 for the marginal means across the study conditions.
Figure 4

*Marginal means for Procedural Justice*

Note. CL = Cognitive Load. Error bars represent 95% CI.

**Interview Anxiety.** Participants who were instructed to use deceptive IM ($M = 3.12, SE = 0.08$) tended to experience significantly higher perceptions of interview anxiety compared to those that were instructed to be honest ($M = 2.77, SE = 0.08$), $F(1, 227) = 11.87, p < .001$. However, the cognitive load manipulations did not significantly increase perceptions of interview anxiety, $F(2, 227) = 0.01, p = .994$. Therefore, Hypothesis 6a was not supported. There was also no significant interaction between imposing cognitive load and instructions to use
deceptive IM, $F(2, 227) = 0.24, p = .789$. Therefore, Hypothesis 7a was not supported. Refer to Figure 5 for the marginal means across the study conditions.

**Figure 5**

*Marginal means for Interview Anxiety*

![Graph showing marginal means for Interview Anxiety](image)

*Note.* CL = Cognitive Load. Error bars represent 95% CI.

**Organizational Attraction.** There was no significant main effects of imposing cognitive load ($F[2, 227] = 1.32, p = .269$) nor instructions to use deceptive IM ($F[1, 227] = 0.13, p = .715$) in predicting perceptions of organizational attraction. However, there was a significant interaction effect between the two variables, $F(2, 227) = 9.59, p < .001$. To test the interaction
effect, post-hoc Tukey tests were performed across the cognitive load conditions separately among participants instructed to be honest and those instructed to be deceptive.6

Among participants who were instructed to be honest, participants in the reverse-order condition (\(M = 3.06, SE = 0.13\)) tended to experience significantly lower perceptions of organizational attraction compared to those in the no manipulation condition (\(M = 3.77, SE = 0.14\)), \(t = 3.81, p < .001\). Furthermore, participants in the secondary task condition (\(M = 3.30, SE = 0.13\)) tended to experience significantly lower perceptions of organizational attraction compared to those in the no manipulation condition, \(t = 2.52, p = .033\). Among participants who were instructed to be deceptive, however, participants in the secondary recall-based task condition (\(M = 3.60, SE = 0.14\)) tended to experience significantly higher perceptions of organizational attraction compared to those in the no manipulation condition (\(M = 3.12, SE = 0.14\)), \(t(227) = 2.56, p = .030\). There were no significant pairwise differences involving participants in the reverse-recall condition (\(M = 3.47, SE = 0.13\)), \(p > .05\). Therefore, Hypothesis 8a was not supported. Refer to Figure 6 for the marginal means across the study conditions.

---

6 The *emmeans::emmeans* function on R bypasses simple main effect F tests when running follow-up tests on the interaction effect. Running simple main effect F tests using another function, and then subsequently running *emmeans* to test pairwise differences in marginal means results in incorrect adjustments to the Tukey HSD.
Figure 6

Marginal means for Organizational Attraction

Note. CL = Cognitive Load. Error bars represent 95% CI.

Interview Performance. There was no significant main effects of imposing cognitive load ($F[2, 227] = 1.29, p = .278$) nor instructions to use deceptive IM ($F[1, 227] = 0.00, p = .955$) in predicting interview performance. There was also no significant interaction effect between the two variables, $F(2, 227) = 0.13, p = .877$. Therefore, Hypothesis 10a was not supported. Refer to Figure 7 for the marginal means across the study conditions.
Detecting Deceptive IM. There was no significant main effects of imposing cognitive load on the detection rates, $F(2, 227) = 1.22, p = .296$. Overall, the correct detection rates were 54.5% for no manipulation ($SE = 5.1\%$), 55.5% for reverse-recall ($SE = 4.9\%$), and 64.1% for the secondary task conditions ($SE = 5.0\%$). However, the interviewers correctly identified the use (or the absence) of deceptive IM significantly higher for participants instructed to be honest ($M = 79.1\%, SE = 4.0\%$) compared to those instructed to use deceptive IM ($M = 37.0\%, SE =$
4.1\%), \(F(1, 227) = 54.97, p < .001\). There was also a significant effect between imposing cognitive load and instructions to use deceptive IM on detection rates, \(F(2, 227) = 3.76, p = .025\).

Separate post-hoc Tukey HSD tests for honest participants and those instructed to use deceptive IM indicated that there were no significant pairwise differences in the detection rates between the no manipulation (\(M = 75.7\%, SE = 7.3\%\)), reverse-recall (\(M = 86.0\%, SE = 6.7\%\)), and the secondary task (\(M = 75.6\%, SE = 6.9\%\)) among participants instructed to be honest. However, among participants who were instructed to use deceptive IM, the interviewers correctly identified the use of deceptive IM significantly higher for participants in the secondary task condition (\(M = 52.6\%, SE = 7.2\%\)) compared to those in the reverse-recall condition (\(M = 25.0\%, SE = 7.0\%\)), \(t(227) = 2.76, p = .017\). There were no significant differences in the detection rates between participants in the no manipulation (\(M = 33.3\%, SE = 7.1\%\)) and the reverse-recall conditions, \(t(227) = 0.84, p = .679\). Similarly, there were no significant differences between participants in the no manipulation and the secondary task conditions, \(t(227) = 1.92, p = .136\).

Refer to Table 4 for the marginal means and the 95% CIs of the detection rates, and Figure 8 for a graphical depiction of the marginal means. Overall, the detection rate was significantly above chance levels (50%) only for the Secondary recall-based task condition, as the 95% CI did not include 50%. Furthermore, the detection rate was significantly above chance levels for participants instructed to be honest, but the rate was significantly lower for participants instructed to use deceptive IM. When comparing the detection rates in each of the 2 x 3 conditions, the rates were significantly higher than chance levels for all cognitive load conditions among participants who were instructed to be honest. Among participants instructed to use
deceptive IM, however, the detection rates were not significantly different from chance levels for the no manipulation and the secondary task conditions. The detection rate was significantly lower than chance levels for the reverse-recall condition. Although there was a significant interaction effect in these findings, Hypothesis 9a and 9b were not supported.

**Table 4**

*Marginal means and 95% CI of the correct detection rates of Deceptive IM*

<table>
<thead>
<tr>
<th></th>
<th>No Manipulation</th>
<th>Reverse-Recall</th>
<th>Secondary Task</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Honest</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>75.7%</td>
<td>86.0%</td>
<td>75.6%</td>
<td>79.1%</td>
</tr>
<tr>
<td></td>
<td>(57.0%, 94.3%)</td>
<td>(68.7%, &gt;100.0%)</td>
<td>(57.9%, 93.3%)</td>
<td>(68.8%, 89.4%)</td>
</tr>
<tr>
<td><strong>Deceptive</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>33.3%</td>
<td>25.0%</td>
<td>52.6%</td>
<td>37.0%</td>
</tr>
<tr>
<td></td>
<td>(15.2%, 51.5%)</td>
<td>(7.1%, 42.9%)</td>
<td>(34.2%, 71.0%)</td>
<td>(26.5%, 47.5%)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>54.5%</td>
<td>55.5%</td>
<td>64.1%</td>
<td>58.4%</td>
</tr>
<tr>
<td></td>
<td>(41.5%, 67.5%)</td>
<td>(43.1%, 68.0%)</td>
<td>(51.3%, 76.9%)</td>
<td>(52.1%, 64.7%)</td>
</tr>
</tbody>
</table>

*Note.* Bracketed values represent 95% CI. The M and the 95% CI for the total among all participants (N = 238) are not adjusted for interviewer nesting. Bolded cells indicate that the percentages are significantly different from chance levels.
**Figure 8**

*Graphical depiction of the Detection rates of Deceptive IM*

![Graphical depiction of the Detection rates of Deceptive IM](image)

*Note.* CL = Cognitive Load. Error bars represent 95% CI.

**Path-Analysis (Indirect Effects)**

**Overall Model Fit.** Refer to Figure 9 for the diagram of the path-analysis model. The following values are based on the robust fit indices, using the MLR estimator and clustered-adjusted standard errors to test the direct and the indirect parameters. The partially-mediated model provided an adequate model fit, $\chi^2(12) = 25.20, p = .014$, CFI = .94, TLI = .84, RMSEA = .07, SRMR = .03, AIC = 3195.01, BIC = 3309.59. On the other hand, the fully-mediated model provided a rather poor model fit, $\chi^2(20) = 58.18, p < .001$, CFI = .84, TLI = .71, RMSEA = .09, SRMR = .05, AIC = 3207.18, BIC = 3293.99. Furthermore, the Santorra-Bentler Chi-Squared difference test indicated that the partially-mediated model provided a significantly better model
fit compared to the fully-mediated model, $\Delta \chi^2(8) = 37.03, p < .001$. The subsequent direct and indirect paths are reported based on the partially-mediated model.

**Figure 9**

*Results of the path analysis (Direct Paths)*

![Path Analysis Diagram](image)

*Note.* The parameters are based on the partially-mediated model using the MLR estimator and cluster-adjusted standard errors. Deceptive IM ($0 =$ honest, $1 =$ deceptive) refers to the instructions to use the behaviour, and not the self-report measure. The reverse-order and secondary recall-based task manipulations use the no manipulation condition as a referent for the indicator coding. *$p < .05$, **$p < .01$. 

**Direct Paths predicting Perceived CL.** Supporting the results of the ANOVA, the reverse-order manipulation significantly increased perceived cognitive load, $\beta = 1.10, p < .001$. Similarly, the secondary recall-based task manipulation increased perceived cognitive load, $\beta = .74, p < .001$. While instructions to use deceptive IM significantly increased perceived cognitive
load compared to instructions to be honest ($\beta = .48, p < .001$), the variable did not significantly interact with neither the reverse-order ($\beta = -.15, p = .240$) nor the secondary recall-based task manipulations ($\beta = .01, p = .960$).

**Table 5**

*Conditional Indirect Effects, Index of Moderated Mediation and Direct Effects*

<table>
<thead>
<tr>
<th>CL Manipulation</th>
<th>Outcome</th>
<th>Strategy</th>
<th>Coefficient</th>
<th>95CI Lower</th>
<th>95CI Upper</th>
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<tr>
<td><strong>Indirect Effects (mediated by Cognitive Load)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Reverse-Order</td>
<td>IP</td>
<td>Honest</td>
<td>-.29**</td>
<td>-.53</td>
<td>-.05</td>
</tr>
<tr>
<td>Reverse-Order</td>
<td>IP</td>
<td>Deceptive</td>
<td>-.25*</td>
<td>-.49</td>
<td>-.02</td>
</tr>
<tr>
<td>Reverse-Order</td>
<td>PJ</td>
<td>Honest</td>
<td>-.49**</td>
<td>-.72</td>
<td>-.26</td>
</tr>
<tr>
<td>Reverse-Order</td>
<td>PJ</td>
<td>Deceptive</td>
<td>-.42**</td>
<td>-.59</td>
<td>-.25</td>
</tr>
<tr>
<td>Reverse-Order</td>
<td>IA</td>
<td>Honest</td>
<td>.58**</td>
<td>.28</td>
<td>.87</td>
</tr>
<tr>
<td>Reverse-Order</td>
<td>IA</td>
<td>Deceptive</td>
<td>.50**</td>
<td>.24</td>
<td>.75</td>
</tr>
<tr>
<td>Reverse-Order</td>
<td>OA</td>
<td>Honest</td>
<td>-.25*</td>
<td>-.47</td>
<td>-.03</td>
</tr>
<tr>
<td>Reverse-Order</td>
<td>OA</td>
<td>Deceptive</td>
<td>-.22*</td>
<td>-.39</td>
<td>-.04</td>
</tr>
<tr>
<td>Secondary Recall</td>
<td>IP</td>
<td>Honest</td>
<td>-.20**</td>
<td>-.34</td>
<td>-.05</td>
</tr>
<tr>
<td>Secondary Recall</td>
<td>IP</td>
<td>Deceptive</td>
<td>-.20*</td>
<td>-.39</td>
<td>-.01</td>
</tr>
<tr>
<td>Secondary Recall</td>
<td>PJ</td>
<td>Honest</td>
<td>-.33**</td>
<td>-.52</td>
<td>-.13</td>
</tr>
<tr>
<td>Secondary Recall</td>
<td>PJ</td>
<td>Deceptive</td>
<td>-.33**</td>
<td>-.42</td>
<td>-.24</td>
</tr>
<tr>
<td>Secondary Recall</td>
<td>IA</td>
<td>Honest</td>
<td>.39**</td>
<td>.16</td>
<td>.61</td>
</tr>
<tr>
<td>Secondary Recall</td>
<td>IA</td>
<td>Deceptive</td>
<td>.39**</td>
<td>.24</td>
<td>.54</td>
</tr>
<tr>
<td>Secondary Recall</td>
<td>OA</td>
<td>Honest</td>
<td>-.17*</td>
<td>-.33</td>
<td>-.01</td>
</tr>
<tr>
<td>Secondary Recall</td>
<td>OA</td>
<td>Deceptive</td>
<td>-.17**</td>
<td>-.30</td>
<td>-.04</td>
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<td><strong>IMM (Honest vs. Deceptive)</strong></td>
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</tr>
<tr>
<td>Reverse-Order</td>
<td>IP</td>
<td></td>
<td>.04</td>
<td>-.02</td>
<td>.10</td>
</tr>
<tr>
<td>Reverse-Order</td>
<td>PJ</td>
<td></td>
<td>.07</td>
<td>-.05</td>
<td>.18</td>
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<tr>
<td>Reverse-Order</td>
<td>IA</td>
<td></td>
<td>-.08</td>
<td>-.21</td>
<td>.05</td>
</tr>
<tr>
<td>Reverse-Order</td>
<td>OA</td>
<td></td>
<td>.03</td>
<td>-.03</td>
<td>.10</td>
</tr>
<tr>
<td>Secondary Recall</td>
<td>IP</td>
<td></td>
<td>.00</td>
<td>-.14</td>
<td>.13</td>
</tr>
<tr>
<td>Secondary Recall</td>
<td>PJ</td>
<td></td>
<td>-.01</td>
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<td>.22</td>
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<tr>
<td>Secondary Recall</td>
<td>IA</td>
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<td>Secondary Recall</td>
<td>OA</td>
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<td>.00</td>
<td>-.12</td>
<td>.11</td>
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</table>

Direct
Conditional Indirect Effects. Refer to Table 5 for the numerical values, indirect paths, the IMMs, and the direct paths. Overall, cognitive load significantly mediated the relationship between imposing cognitive load and the study outcomes among participants instructed to be honest and those instructed to use deceptive IM, *p < .05. Supporting these conditional indirect effects, none of the IMMs were statistically significant, *p > .05. In other words, the mediated relationships did not differ significantly among participants instructed to be honest and those instructed to use deceptive IM. The only major differences found between the reverse-order and the secondary recall-based task manipulations were whether the mediations were partial or full for two of the outcomes. More information is provided below.

Perceived cognitive load significantly mediated the indirect relationship between imposing cognitive load and procedural justice (\(\beta_{\text{Reverse}|\text{Honest}} = -.49, p < .001; \beta_{\text{Reverse}|\text{Deceptive}} = -.42, p < .001; \beta_{\text{Secondary}|\text{Honest}} = -.33, p = .001; \beta_{\text{Secondary}|\text{Deceptive}} = -.33, p < .001\)). Imposing cognitive load was positively associated with greater perceived cognitive load, which in turn negatively related to procedural justice (\(\beta = -.45, p < .001\)). The mediation effect was full for the

<table>
<thead>
<tr>
<th>Condition</th>
<th>Variable</th>
<th>IP</th>
<th>PJ</th>
<th>OA</th>
</tr>
</thead>
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<td>IP</td>
<td>-.01</td>
<td>.17</td>
<td>.02</td>
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<tr>
<td>Reverse-Order</td>
<td>PJ</td>
<td>-.21</td>
<td>-.03</td>
<td>-.12</td>
</tr>
<tr>
<td>Reverse-Order</td>
<td>IA</td>
<td>-.52**</td>
<td>-.77</td>
<td>-.27</td>
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<td>Reverse-Order</td>
<td>OA</td>
<td>.19</td>
<td>.37</td>
<td>.15</td>
</tr>
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<td>Secondary Recall</td>
<td>IP</td>
<td>.02</td>
<td>-.03</td>
<td>-.21</td>
</tr>
<tr>
<td>Secondary Recall</td>
<td>PJ</td>
<td>.24</td>
<td>.29</td>
<td>.89</td>
</tr>
<tr>
<td>Secondary Recall</td>
<td>IA</td>
<td>.08</td>
<td>-.33</td>
<td>-.81</td>
</tr>
<tr>
<td>Secondary Recall</td>
<td>OA</td>
<td>.41</td>
<td>.17</td>
<td>-.06</td>
</tr>
</tbody>
</table>

Note. IMM = Index of Moderated Mediation. IP = Interview Performance, PJ = Procedural Justice, IA = Interview Anxiety (Self-Rated), OA = Organizational Justice.

*p < .05, **p < .01.
reverse-order manipulation, and partial for the secondary recall-based task manipulation, \( a = .05 \). Therefore, Hypothesis 4b was supported, and Hypothesis 5b was not supported.

Furthermore, perceived cognitive load significantly mediated the indirect relationship between imposing cognitive load and interview anxiety (\( \beta_{\text{Reverse|Honest}} = .58, p < .001; \beta_{\text{Reverse|Deceptive}} = .50, p < .001; \beta_{\text{Secondary|Honest}} = .39, p = .001; \beta_{\text{Secondary|Deceptive}} = .39, p < .001 \)). Imposing cognitive load was positively associated with greater perceived cognitive load, which in turn positively related to interview anxiety (\( \beta = .52, p < .001 \)). The mediation effect was partial for the reverse-order manipulation, and full for the secondary recall-based task manipulation, \( a = .05 \). Therefore, Hypothesis 6b was supported, and Hypothesis 7b was not supported.

Perceived cognitive load also significantly and fully mediated the indirect relationship between imposing cognitive load and organizational attraction (\( \beta_{\text{Reverse|Honest}} = -.25, p = .028; \beta_{\text{Reverse|Deceptive}} = -.22, p = .019; \beta_{\text{Secondary|Honest}} = -.17, p = .040; \beta_{\text{Secondary|Deceptive}} = -.17, p = .008 \)). Imposing cognitive load was positively associated with greater perceived cognitive load, which in turn negatively related to organizational attraction (\( \beta = -.23, p < .001 \)). Because the mediation effect did not significantly differ among participants instructed to be honest compared to those instructed to use deceptive IM, Hypothesis 8b was not supported.

Lastly, perceived cognitive load also significantly and fully mediated the indirect relationship between imposing cognitive load and Interview Performance (\( \beta_{\text{Reverse|Honest}} = -.29, p = .018; \beta_{\text{Reverse|Deceptive}} = -.25, p = .036; \beta_{\text{Secondary|Honest}} = -.20, p = .008; \beta_{\text{Secondary|Deceptive}} = -.20, p = .041 \)). Imposing cognitive load was positively associated with greater perceived cognitive load, which in turn negatively related to interview performance (\( \beta = -.27, p = .013 \)). Again, because the mediation effect did not significantly differ among participants instructed to be honest
compared to those instructed to use deceptive IM, Hypothesis 10b was not supported. In summary, perceived cognitive load is an important mediator that explains the indirect relationships between imposing cognitive load and important applicant reactions and outcomes. However, the indirect effects are not dependent on the use of either honest behaviour or deceptive IM.

Supplemental Analysis – Frequentist Bootstrap Estimates. As mentioned in the Method section, bootstrapping methods are incompatible with cluster-adjusted standard errors. However, one concerning caveat to using non-bootstrapped approaches to test the indirect paths and the IMMs is the substantially lower power achieved in comparison to bootstrapping approaches (Preacher et al., 2007). Furthermore, the cluster-adjusted standard errors likely do not address the non-normality of the parameter distributions. Therefore, I also ran a partially-mediated model using the ML estimator and 5000 bootstrap iterations. The only change in the results pertained to the direct effect between the secondary recall-based task manipulation and interviewer anxiety, which became statistically significant (95% CI [-0.66, -0.07], p = .015). Otherwise, the results for all other paths (direct and indirect) and the IMMs did not change.
### Table 6

**Summary of Hypotheses**

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Cognitive Load Manipulation</th>
<th>Reverse vs. Secondary</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1</strong></td>
<td>Applicants <strong>instructed to use deceptive IM</strong> will tend to experience <strong>significantly higher perceived cognitive load</strong>, compared to those that are instructed to be honest.</td>
<td>Supported</td>
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<td><strong>2</strong></td>
<td><strong>Imposing cognitive load</strong> will significantly <strong>increase perceptions of cognitive load</strong>, such that applicants in the reverse-recall and the secondary recall-based task conditions will report perceived cognitive load compared to those in the no manipulation condition.</td>
<td>Supported</td>
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<tr>
<td><strong>3</strong></td>
<td>Instructions to be <strong>honest vs. use deceptive IM</strong> will moderate the relationship <strong>between imposing cognitive load onto applicants and their perceived cognitive load</strong>. More specifically, applicants that are instructed use deceptive IM will tend to show a stronger positive association between imposing cognitive load and their perceived cognitive load, compared to those that are instructed to be honest.</td>
<td>Not Supported</td>
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<tr>
<td><strong>4a</strong></td>
<td><strong>Imposing cognitive load</strong> will significantly <strong>decrease perceptions of procedural justice from the applicants</strong>, such that applicants in the reverse-order and secondary task conditions will experience lower perceptions of procedural justice compared to those in the no manipulation condition.</td>
<td>Not Supported</td>
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<td><strong>4b</strong></td>
<td><strong>Perceived cognitive load</strong> will mediate the relationship between <strong>imposing cognitive load and perceptions of procedural justice</strong> of applicants. More specifically, imposing cognitive load will be</td>
<td>Supported</td>
</tr>
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</table>
associated with greater perceived cognitive load, which in turn will be associated with lower perceptions of procedural justice.

5a Instructions to be **honest vs. use deceptive IM** will moderate the relationship between **imposing cognitive load onto applicants and perceptions of procedural justice**, such that the negative relationship will be stronger for applicants that are instructed to use deceptive IM.

5b Instructions to be **honest vs. use deceptive IM** will moderate the indirect relationship **between imposing cognitive load onto applicants and perceptions of procedural justice**, such that the negative indirect relationship between imposing cognitive load and procedural justice (as mediated by perceived cognitive load) will be stronger for applicants that are instructed to use deceptive IM.

6a **Imposing cognitive load** will significantly **increase perceptions of interview anxiety** from the applicants.

6b **Perceived cognitive load** will mediate the relationship between **imposing cognitive load and perceptions of interview anxiety** of applicants. More specifically, imposing cognitive load will be associated with greater perceived cognitive load, which in turn will be associated with higher perceptions of interview anxiety.

7a Instructions to be **honest vs. use deceptive IM** will moderate the relationship between **imposing cognitive load onto applicants and perceptions of interview anxiety**, such that the positive relationship will be stronger for applicants that are instructed to use deceptive IM.
7b Instructions to be honest vs. use deceptive IM will moderate the indirect relationship between imposing cognitive load onto applicants and perceptions of interview anxiety, such that the positive indirect relationship between imposing cognitive load and interview anxiety (as mediated by perceived cognitive load) will be stronger for applicants that are instructed to use deceptive IM.

8a Instructions to be honest vs. use deceptive IM will moderate the relationship between imposing cognitive load onto applicants and perceptions of organizational attraction. Among applicants instructed to use deceptive IM, interviews that impose cognitive load will tend to elicit significantly lower perceptions of organizational attraction compared to those that do not. However, among applicants that are instructed to be honest, there will be no significant differences in perceptions of organizational attraction.

8b Instructions to be honest vs. use deceptive IM will moderate the indirect relationship between imposing cognitive load onto applicants and organizational attraction, as mediated by perceived cognitive load. Among applicants instructed to use deceptive IM, imposing cognitive load will be positively associated with perceived cognitive load, which in turn will negatively relate to perceptions of organizational attraction. However, there should be no significant interaction effect among applicants instructed to be honest.

9a Interviewers will detect deceptive IM with greater accuracy for the interviews that impose cognitive load onto applicants, compared to interviews that do not.

9b For the interviews that impose cognitive load onto applicants, the accuracy rate of detecting deceptive IM will be above chance levels.
10a **Imposing cognitive load** onto applicants will moderate the relationship between *instructions to be honest vs. to use deceptive IM and interview performance ratings*. There will be no significant differences in interview performance for interviews that do not impose cognitive load onto applicants. However, for interviews that impose cognitive load, applicants who are instructed to be honest will tend to receive higher performance ratings than those that are instructed to use deceptive IM.

10b **Imposing cognitive load** onto applicants will moderate the mediated relationship between *instructions to be honest vs. to use deceptive IM and interview performance ratings* through perceived cognitive load. For interviews that do not impose cognitive load onto applicants, there will be a positive indirect relationship between the use of deceptive IM and interview performance ratings. However, for interviews that impose cognitive load, there will be a negative indirect relationship between the use of deceptive IM and interview performance ratings.

*Note.* The Reverse vs. Secondary column displays any significant differences in values between the two cognitive load manipulations. *None (main effect)* indicates no significant mean differences between the two cognitive load manipulations, when there was no specific main effects hypotheses for the variables of interest (i.e., 7a, 8a, and 10a). Otherwise, the hypotheses testing moderation, mediation or conditional mediation effects are indicated as N/A.
Chapter 4: Discussion

Previous research has indicated that there are significant challenges in detecting or reducing deceptive IM within job interviews (Law et al., 2016; Roulin et al., 2015; Roulin, 2016). Furthermore, interventions in addressing these issues have largely shown mixed or unpromising results (Law et al., 2016; Powell & Roulin, 2016). Given how imposing cognitive load onto applicants has been successful in addressing deception within other interdisciplinary literature (e.g., forensic; Vrij et al., 2008; Vrij et al., 2017), the main objectives of the study were to explore 1) how imposing cognitive load influences the mental capacities of honest applicants and those that use deceptive IM, and 2) how cognitive load influences applicant reactions (i.e., procedural justice, interview anxiety, and organizational attraction) and outcomes (i.e., interview performance, detecting deceptive IM). Overall, the cognitive load manipulations were effective in increasing perceptions of cognitive load among applicants. However, the relationships between the cognitive load manipulations and applicant reactions and outcomes were mixed, even though perceived cognitive load mediated the indirect relationships for both the reverse-order and the secondary task conditions. Further, none of the cognitive load manipulations were successful in assisting interviewers to correctly detect deceptive IM at above chance levels. While these findings clearly indicate that cognitive load manipulations successfully alter applicant mental capacities, more research and refinement of these manipulations are needed in order to better determine their implications on deceptive IM, as well as their practical utility.

The Effect of Imposing CL and Deceptive IM on Perceived CL

Deceptive IM

Overall, applicants that were instructed to use deceptive IM during the interview tended to perceive significantly higher cognitive load than those instructed to be honest. This finding is
in line with previous research suggesting that deception is generally more cognitively difficult than honest behaviour (Vrij et al., 2008; Sporer, 2016). Furthermore, it also supports the notion that deception and deceptive IM mainly differ in the context and the duration in which they are used, and less so with the information that is communicated and their underlying intentions. Prior definitions and terminologies in the literature suggest that deceptive IM tends to occur for a longer period of time with the intent of managing self-impressions (Carlson et al., 2011), whereas deception tends to be characterized as shorter, more isolated events (Jehn & Scott, 2008). However, both deception and deceptive IM require individuals to generate and communicate fabricated information (Carlson et al., 2011; van’t Veer et al., 2008; Jehn & Scott, 2008). Additionally, similar to isolated acts of deception (Walczyk et al., 2013), deceptive IM tends to be more deliberate and intentional (Levashina & Campion, 2007), contains more coherent and spontaneous detail in the verbal content (Powell & Roulin, 2018), and is associated with a more heightened state of arousal (Powell et al., 2020). The results also strongly indicate that faking within job interviews has a substantial cognitive load component. Consequently, I demonstrate that cognitive theories used to explore deception (e.g., Cognitive Load Theory, the Activation-Decision-Construction-Action theory; Walczyk et al., 2014; Paas et al., 2003) can serve as frameworks to better understand deceptive IM in the workplace.

**Imposing Cognitive Load**

Both the reverse-order and the secondary task manipulations were effective in increasing perceptions of cognitive load among applicants, although perceived cognitive load within the control conditions were still moderate. Nevertheless, the findings demonstrate that it is feasible to limit the mental capacities of applicants within job interviews using various kinds of cognitive load manipulations, in line with previous research on the reverse-order (Vrij et al., 2008; Vrij et
al., 2012) and the secondary task manipulations (van’t Veer et al., 2014). The cognitive load manipulations are also likely to be especially effective within job interview settings, because it has been proposed that applicants tend to be more deliberate in their actions and behaviours to attain high-stakes goals and outcomes (Kristof-Brown, 2000). Many applicants also tend to experience greater interview anxiety that is associated with self-presentation concerns (Powell et al., 2020), which may further deplete cognitive load. Therefore, any perceptions of increased cognitive load within job interview settings are likely be especially pronounced.

However, both the reverse-order and the secondary task manipulations tended to increase perceived cognitive load to similar extents among applicants that are either honest or use deceptive IM (i.e., separate main effects). These findings imply that the use of deceptive IM and imposing cognitive load additively takes away the free mental capacity of applicants. Furthermore, given how the cognitive load manipulations did not show to be more effective for applicants using deceptive IM, compared to those that were honest, it is unlikely that the manipulations target and penalize the specific cognitive processes that are associated with deceptive IM. It is also evident that applicants using deceptive IM within more typical job interviews (i.e., those that do not use cognitive load manipulations) still have a substantial amount of free mental capacity remaining, because the cognitive load manipulations increased perceived cognitive load similarly among honest and deceptive applicants. Nevertheless, while honest applicants still have greater mental resources to focus on other aspects of interviews that impose cognitive load, and possibly still have an advantage in that regard compared to those that use deceptive IM, the relative advantage is not significantly different compared to more typical interviews. From a fairness perspective, these manipulations are also essentially penalizing honest behaviour as much as deceptive IM.
Cognitive Load and Applicant Reactions

Procedural Justice

There were no significant differences in perceptions of procedural justice when comparing the no manipulation condition to either of the two cognitive load manipulations. However, applicants tended to have higher perceptions of procedural justice for the secondary task manipulation, compared to the reverse-order manipulation. It is highly plausible that the differences in perceptions of procedural justice can largely explained by the higher familiarity and the perceived job-relatedness of the secondary task manipulation (Bauer et al., 2001), and the lower perceived treatment and two-way communication of the reverse-order manipulation. The secondary task manipulation essentially assesses a type of cognitive ability by having applicants memorize and recall lists of items, and cognitive ability has shown to one of the most robust predictors of job performance (Gonzalez-Mule et al., 2014; Schmidt et al., 2008). As a result, it is quite common for applicants to experience various forms of cognitive ability tests within recruitment settings (Kantrowitz et al., 2018). Consequently, applicants are more likely to interpret the secondary task manipulation as a tool in evaluating their fit for the job position, especially when cognitive ability tests tend to garner more positive reactions than other types of recruitment tools (Rosse et al., 1994). The list of items to memorize were also related to concepts that are highly related to a target job that is highly accessible (i.e., clothing store sales associate), which also likely contributed to the familiarity and the perceived job-relatedness. This is especially important to note given how the study used an undergraduate university student sample, where 1) it is common for them to have recent work experience within retail sales positions, and 2) they may be enrolled in some courses that especially tend to emphasize memorization (i.e., through exams). To the contrary, individuals generally do not encounter
workplace situations where they are asked to recall an event in a reverse chronological order (Vrij et al., 2008), which is likely to lower perceptions of its job-relatedness. Because the reverse-order manipulation also tends to strongly interrupt the typical flow of a conversation, applicants may be less likely to perceive greater detachment from the interviewer and a lack of a two-way communication (Bauer et al., 2001). Overall, these differences may indicate that the actual procedures of the cognitive load manipulations influences perceptions of procedural justice.

At the same time, the cognitive load manipulations were indirectly related to procedural justice through perceived cognitive load, for both honest and deceptive applicants. More specifically, manipulations that imposed cognitive load were positively associated with perceived cognitive load, which in turn was negatively associated with procedural justice. In line with CLT (Paas et al., 2003), applicants who tended to experience higher perceived cognitive load were likely to perceive that they had a lower chance to perform well during the interview, because they would have less free mental capacity to focus their resources on their performance. However, the insignificant total effects between imposing cognitive load and procedural justice also suggests that the negative effects of perceived cognitive load can be countered or negated through other mechanisms. For instance, imposing cognitive load may have impair applicants’ abilities to make more deliberate appraisals and judgements towards the interview, considering how cognitive load is positively associated with a tendency to favour more automatic thought processes (Schulz et al., 2014; Tinghog et al., 2016). Subsequently, these impairments may have

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7 While the indirect relationship between the reverse-order manipulation and procedural justice explained by perceived cognitive load was a full mediation, this does not mean that there are no more mediators that can explain the relationship. Rather, an insignificant direct and total effects may also indicate that certain mediators may be supressing these effects (Rucker et al., 2011).
positively influenced perceptions of procedural justice, because these applicants would be less likely to search for cues that indicate violations of the construct.

**Interview Anxiety**

Applicants who were instructed to use deceptive IM tended to experience significantly higher interview anxiety compared to those that were instructed to be honest, which is consistent with previous research (Law et al., 2016; Powell et al., 2020). Powell et al. (2020) suggested that applicants using deceptive IM tend to experience greater interview anxiety, because these applicants may be more motivated to use the tactic as a protective mechanism that is often uncomfortable to use. While it is unlikely that participants in the current study were motivated to use deceptive IM in that regard, given how they were randomly instructed to use the tactic, participants may still have felt greater discomfort because deceptive behaviour is generally perceived as unethical (Carlson et al., 2011). However, there were no significant differences in perceptions of interview anxiety across the reverse-recall, secondary task, and the no manipulation (i.e., control) conditions. The finding indicate that organizations may be able to impose cognitive load onto applicants without increasing interview anxiety. However, it also suggests that imposing cognitive load does not further penalize the affective states of applicants using deceptive IM.

Nevertheless, similar to the relationship between imposing cognitive load and procedural justice, there are likely additional mediators that explain the indirect relationship between imposing cognitive load and interview anxiety in opposite directions, that ultimately explain the insignificant total effects. The results demonstrated that perceived cognitive load mediated the positive indirect relationship for both honest and deceptive applicants. Imposing cognitive load was positively associated with perceived cognitive load, which in turn was positively associated
with interview anxiety. Both the reverse-order and the secondary task manipulations have an unintended consequence of substantially interrupting the flow of dialogue and communication between the applicant and the interviewer, even within structured interviews. More specifically, applicants may be more likely to hesitate in generating their responses because of the reverse-order manipulation severely disrupts recalling an event from schema (Geiselman & Callot, 1990), and the secondary task makes applicants pay attention to a separate task when they respond to the interview questions (van’t Veer et al., 2014). However, these interruptions may also result in applicants paying less attention towards how they respond to the social cues of the interviewer (e.g., timing when to respond to the questions). This is because the interview would be less likely to resemble a two-way conversation, and applicants may therefore be more likely to disregard certain social norms that they usually perceive within job interviews. Furthermore, the greater interruptions during the interview may also hinder applicants’ ability to compare their responses across multiple previous answers, and subsequently evaluate their performances up to a specific point in the interview. For these reasons, the greater number of interruptions and hesitations from the cognitive load manipulations may have unintentionally removed sources of interview anxiety that are typical of job interviews (i.e., perceptions of social skills and behaviour, thinking about their prior answers; Keller et al., 1984), thereby cancelling out the indirect effect through perceived cognitive load.

**Organizational Attraction**

Contrary to the predictions, honest applicants tended to perceive higher organizational attraction for the no manipulation condition, compared to either of the cognitive load manipulations. In the opposite direction, however, applicants using deceptive IM tended to perceive higher organizational attraction for the secondary task condition compared to the no
manipulation condition. It is likely that the characteristics of the cognitive load manipulations signaled different organizational characteristics among honest and deceptive applicants. This is important to note because unlike real recruitment settings (Bangerter et al., 2012), applicants in the current study were not able to adapt and vary their use of deceptive IM. Therefore, the way applicants interpreted the cognitive load manipulations may have largely depended on how they penalized their given behavioural strategy during the interview. Some applicants who were instructed to use deceptive IM may have figured out the intention of the secondary task manipulation (i.e., penalizing the use of deceptive IM), and may have interpreted it as an honest signal that is desirable to applicants. Other applicants who may be substantially lower in honesty-humility (Lee & Ashton, 2018) may have also welcomed the presence of a recall-based task, given how these individuals tend to be more confident in their ability to manipulate others (Lee & Ashton, 2005; Wiltshire et al., 2014). To the contrary, honest applicants may have perceived that the cognitive load manipulations are penalizing the generation of honest responses, especially when these manipulations seem to target free mental capacity as a whole, and not the specific cognitive processes associated with deceptive IM. These applicants may also have interpreted the cognitive load manipulations as not being necessary and being distrustful towards applicants. Nevertheless, while the findings indicate that organizations may be signalling different attributes towards applicants that are honest or use deceptive IM, these signals may be quite different within a real job interview where there are greater stakes (e.g., getting hired for a real job).

**Cognitive Load and Interview Performance**

We found no significant overall mean differences in interview performance among the different conditions. However, despite the null total effects, imposing cognitive load was
indirectly related to interview performance through perceived cognitive load. More specifically, imposing cognitive load was positively associated with perceived cognitive load, which in turn was negatively associated with interview performance. These findings provide preliminary evidence that cognitive load manipulations have the potential to reduce interview performance by depleting applicant mental capacity. Nevertheless, at least in the current study, these effects were likely countered by other mechanisms that suppress this indirect effect, resulting in a null direct effect. In particular, these manipulations may also have increased the cognitive load of interviewers, and thereby impaired how they evaluate applicant responses and behaviour. It may be that interviewers may have trouble assessing the strength and quality of interview responses that are in reverse chronological order, especially when 1) all of the interview questions are reverse-ordered, and 2) the interviewers did not have extensive training in assessing such responses. The interviewers in the current study also had to switch their attention multiple times between the interview questions and the secondary recall-based task, which may have impaired their ability to evaluate the responses of applicants. For these reasons, it would be imperative to ensure that interviewers have sufficient mental capacities in order to fully evaluate the responses of applicants, especially when these applicants are eliciting verbal or non-verbal cues that are reflective of deceptive IM (Powell & Roulin, 2018).

Nevertheless, both the direct and the indirect effects in the relationship between imposing cognitive load and interview performance did not significantly differ among honest and deceptive applicants. This is concerning for a couple of reasons. First, the finding demonstrates that the cognitive load manipulations did not penalize the use of deceptive IM on an outcome that has arguably the most substantial consequences for organizations in a job interview, given how organizations use these ratings to select their employees (Barber et al., 1999). Therefore, the
current findings do not provide evidence that the cognitive load manipulations increase the proportion of honest applicants who would be given a job offer. Rather, it suggests that deceptive IM is still not penalized, similar to more conventional interviews (Melchers et al., 2020). Second, the findings provide some evidence that increased perceptions of cognitive load from the cognitive load manipulations can be detrimental towards behaviours and cognitive processes other than deceptive IM, given how there were no significant differences in the indirect effects. This is in line with a growing research in other areas suggesting that imposing cognitive load can be detrimental towards honest individuals (Fenn et al., 2015; Verschuere et al., 2018).

**Cognitive Load and Deceptive IM Detection**

There still remains substantial challenges in detecting deceptive IM, even with the use of cognitive load manipulations. Overall, the correct detection rates were twice and high and significantly above chance levels among honest applicants compared to deceptive applicants, where the detection rates were significantly below chance levels. These findings support the results of Roulin et al. (2015)’s study on detecting deceptive IM within job interviews, as well as Vrij et al. (2017)’s meta-analysis on detecting deception across non-job interview settings, which also found higher detection rates for honest responses. Furthermore, these differences are reflective of the truth bias, where evaluators have the tendency to believe that interviewees are being truthful (Clementson, 2018; Vrij et al., 2008). The findings also demonstrated that neither the reverse-order nor the secondary task manipulations reduced the truth bias. In fact, the reverse-order manipulation in particular may have augmented the effect, because the detection rate for deceptive IM ended up being significantly lower than chance levels. It is highly likely that the greater demand that is likely required for interviewers to conduct interviews that impose cognitive load is not helping address the truth bias. The truth bias is the simplest and the least
cognitively demanding heuristic to use when evaluating individuals (Millar & Millar, 1997; Roulin et al., 2015), and therefore, individuals also tend to rely on the heuristic under higher cognitive load (Millar & Millar, 1997).

Furthermore, the detection rates across the three cognitive load manipulations depended on whether the applicant was honest or using deceptive IM. The detection rates did not significantly differ across the three cognitive load conditions for honest applicants, which supports meta-analytic findings from outside the job interview context that suggesting that imposing cognitive load does not significantly improve detection rates of honest behaviour (Vrij et al., 2017). However, among deceptive applicants, the detection rate of the reverse-order manipulation was significantly lower (and also significantly below chance levels) compared to the secondary task condition. Additionally, the detection rates of both cognitive load manipulations were not significantly different from the no manipulation condition. The particularly low detection rate for the reverse-order manipulation among applicants using deceptive IM highly contradicts with other research outside of job interview settings, because the main concern of the approach was its tendency to classify honest individuals as liars (Blandon-Gitlin et al., 2015; Fenn et al., 2015). Nevertheless, it must also be noted that much of the research on the reverse-order approach took place in settings where it was expected for individuals to provide every single detail to the best of their ability, particularly within forensic settings (Frosina et al., 2018; Vrij et al., 2008). On the other hand, applicants during job interviews are only expected to provide information that is relevant to the job (Conway & Peneno, 1999), and the time they have to complete their response is generally more limited. Consequently, it is possible that the reverse-order approach actually facilitates the generation of deceptive responses in some settings, because applicants may tend to worry less about whether
their responses chronologically make sense. The process in evaluating responses that are in reverse chronological order may also be cognitively taxing on interviewers. To the contrary, while interviewers have to provide divided attention to the interview questions and the recall task for the secondary task manipulation, the conventional ordering of the responses may help them better determine whether the applicant was honest or deceptive. Nevertheless, as stated before, any comparisons of detection rates across the six conditions should be interpreted with caution, due to the large sizes of the confidence intervals.

**Theoretical Implications**

There are a number of theoretical implications to the study. First, the study helps advance knowledge and theory on deceptive IM within workplace settings, by exploring the construct from a cognitive perspective through a wide variety of interdisciplinary research, including Cognitive (Walzyck et al., 2014) and Forensic (Vrij et al., 2008) Psychology. Previously, deceptive IM has not been studied from a cognitive perspective, even though the capacity to use deceptive IM (i.e., attributes that enable applicants to effectively use the behaviour) was thought to be an important theoretical antecedent in its use (Law et al., 2016; Levashina & Campion, 2006). However, the study demonstrates that it is feasible to explore deceptive IM from a cognitive perspective through the use of self-report cognitive load rating scales. It is evident that prior cognitive theories used to explore deception can also serve as frameworks to better understand deceptive IM (Paas et al., 2003; Walczyk et al., 2014). The cognitive processes pertaining to the use of deception, as well as the effects of these processes on applicant behaviour (Vrij et al., 2008), likely also pertain to deceptive IM.

The study also introduces an important construct (i.e., perceived cognitive load) within the interview deceptive IM literature, which is related to, but distinct from the capacity to use the
behaviour. There was only a weak association between perceived cognitive load and measures assessing capacity to use deceptive IM, and perceived cognitive load predicted important applicant reactions and outcomes incrementally beyond multiple measures to assess this capacity. These findings are surprising because applicant traits related to applicant cognition (e.g., cognitive ability, oral expression skills) are thought to be an important predictor of capacity to use deceptive IM (Levashina & Campion, 2006). However, the results of the current study clearly demonstrate experiencing greater cognitive load is not just the inverse of perceiving this capacity. Therefore, the study also challenges the notion that there are only three important antecedents of deceptive IM (i.e., capacity, opportunity and willingness; Levashina & Campion, 2006), and that there may be a fourth antecedent that is uniquely associated with deceptive IM.

The study also introduces the notion that perceived cognitive load can substantially shape affect, as well as more deliberate attitudes and thoughts. Prior research on cognitive load and behaviours have generally presumed that cognitive load can influence behaviours and decisions due to its effect on more automatic cognitive processes (Cohen & Babey, 2012; Lockton et al., 2012; Roch et al., 2000; ). The study substantially expands on these findings by demonstrating that perceived cognitive load can shape how individuals experience affective states, rather than it just being that individuals with certain affect-based dispositions tend to behave differently when they are imposed of cognitive load (Berggren et al., 2013). Additionally, the study demonstrates that changes in perceived cognitive load can influence thoughts and attitudes that have shown to be more deliberate and calculated. This also has substantial implications within workplace contexts, because cognitive load may influence employees’ attitudes and thoughts towards behaviours and decisions that are quite consequential to organizations. More specific to
recruitment settings, the way in which organizations impose cognitive load onto applicants may also influence decisions that impact the applicant hiring pool (e.g., intentions to accept an offer).

**Practical Implications**

Overall, more research is needed before determining whether organizations can use cognitive load manipulations to reduce and better detect deceptive IM. There is preliminary evidence suggesting that cognitive load manipulations can successfully increase perceived cognitive load among applicants. However, because the current study instructed participants to be honest or use deceptive IM, it is difficult to determine whether cognitive load manipulations will decrease the naturalistic use of deceptive IM within real job interviews. Also due to these instructions, more research is needed before determining whether imposing cognitive load through these manipulations negatively impacts applicant reactions. This is because applicants that *willingly* use honest behaviour or deceptive IM may react differently towards cognitive load manipulations, especially when they frequently switch between the two behaviours. Organizations also need to be especially cognizant of negative applicant reactions, because perceived cognitive load has shown to be associated with higher perceptions of interview anxiety, and lower perceptions of procedural justice and organizational attraction. This is especially concerning because negative applicant reactions can be detrimental towards an organization’s hiring pool and the likelihood of applicants accepting job offers (Bauer et al., 2001; Gilliland, 1993). Additionally, it is possible that cognitive load manipulations may not be effective in increasing the detection rates of deceptive IM, without addressing possible impacts on *interviewer* cognitive load. For all of these reasons, organizations should be very cautious at this stage in using cognitive load manipulations within job interviews to target deceptive IM.

**Limitations**
There are a number of limitations to the current study. First, the study used undergraduate student participants for a mock-recruitment interview, because there would have been major ethics implications when using the study design within a real job interview consisting of a broader non-student sample. Therefore, even though participants in the final sample indicated high motivation to perform in the study ($M = 3.99, SD = 0.57$), researchers have speculated that these differences in study designs are still likely to somewhat influence participant motivation (Van Iddekinge et al., 2007). The reactions towards cognitive load may also be more positive within university student samples during a mock-recruitment settings, where there are considerably less penalties when they perform more poorly, and these samples have greater exposure to participating in experimental studies as a whole. However, the use of the sample and setting characteristics may be less of a concern in some other ways, because the rationales for most of the hypotheses were entirely based on how certain interview designs affect applicants’ cognitive processes associated with deceptive IM. These rationales were based on cognitive theories that have shown to be widely applicable to individuals (Paas et al., 2003; Walzyck et al., 2013). Furthermore, IM as a whole tends to manifest similarly across student and non-student samples (Barrick et al., 2009). Nevertheless, the use of undergraduate student interviewers with more limited interviewing experience may have also influenced how the participants behaved during the interviews. Their relative inexperience may have also influenced how certain cognitive load manipulations may have imposed cognitive load onto these interviewers. However, it must be noted that interviewing experience has not shown to positively predict the ability to detect deceptive IM (Roulin, 2016). The experiences of interviewers are also unlikely to substantially influence how they were carried out, because the interviews were highly structured.
Furthermore, participants were also instructed to be honest or use deceptive IM during the entire interview. Providing these instructions helped better determine casual effects of imposing cognitive load and deceptive IM on important study outcomes, which was important to better understand how deceptive IM shapes applicant cognition, as well as whether imposing cognitive load has practical utility within job interviews. Nevertheless, this particular aspect of the study design may have inadvertently influenced the results in other ways. Notably, some participants may have used behavioural tactics that they would normally not use within an interview, considering how individual differences tend to predict the use of IM (Bourdage et al., 2018; Bourdage et al., 2020). This may have influenced their perceptions and reactions towards the cognitive load manipulations, especially if some participants feel more neutral towards a hindered ability to use deceptive IM compared to others. Applicants also generally do not tend to use a consistent set of behaviours across an entire interview. Rather, IM as a whole has shown to be quite context-dependent (Leary & Kowalski, 1990), and the way certain questions are structured are likely to influence within-individual variations of deceptive IM use (Levashina & Campion, 2006). Therefore, the instruction to be honest or use deceptive IM throughout the interview has implications on how applicants react to cognitive load manipulations, given how it limited how applicants can alter their behaviours to address these reactions (e.g., not using deceptive IM for one question in order to conserve mental capacities). It also may influence how interviewers observe applicant behaviour to determine the prevalence of deceptive IM, because the interviewers made judgements on a greater set of behavioural cues spanning a longer period of time.

Additionally, all of the continuous variables of interest were measured through survey questionnaires. Consequently, there may be common method variance concerns for a couple of
reasons, due to the setup of these questionnaires. First, applicants responded to the measures immediately after the interview at a single timepoint. However, it was imperative to provide the items immediately after the interview so that participants could recall as accurately as possible, which is particularly important to accurately measure perceived cognitive load using rating scales (Schmeck et al., 2015). Nevertheless, measuring some of the other variables at a later timepoint, particularly procedural justice and organizational attraction, may have been useful in determining how the cognitive load manipulations have longer-lasting reactions. Such attitudes and reactions at a later timepoint may also influence their decisions relating to the job interview (e.g., accepting a job; Bauer et al., 2001). Second, most of the variables in the study were measured using self-reports. However, it was simply unfeasible to use other ways to assess perceived cognitive load, and as mentioned earlier, other ways to evaluate the construct can be intrusive, unpractical and/or unreliable (Brunken et al., 2002; van Gog & Jarodzka, 2013; van’t Veer et al., 2014). It would have been unrealistic to assess the reaction variables using anything other than a self-report measure.

Lastly, while the use of cluster-adjusted standard errors for testing the conditional indirect effects parameters may help account for interviewer nesting, and subsequently increase statistical power (Konstantopoulos, 2008), there are additional downsides as well. Most notably, it no longer becomes possible to use bias-corrected bootstrapping approaches to test the indirect effects. This ends up biasing the confidence intervals around the indirect effect parameters and the IMMs, because they are not normally distributed (Preacher et al., 2007; Preacher & Hayes, 2008). Furthermore, using non-bootstrapping approaches have also shown to conversely reduce their statistical power (Preacher et al., 2007). Consequently, it was impossible to assess the direct and the indirect parameters in the study using Bayesian statistics that require the use
bootstrapping, which provide unique advantages in how these parameters are interpreted (Kruschke et al., 2012; Marsman & Wagenmakers, 2017; Wagenmakers et al., 2018). Nevertheless, the supplementary analyses using frequentist bootstrapping (i.e., Maximum Likelihood) did not demonstrate inconsistent results, aside from two direct effects.

**Future Directions**

The current study instructed participants to either be honest or use deceptive IM, in order to better evaluate casual relationships pertaining to cognitive load. The procedural choice was important because there was a lack of research exploring applicant cognition and deceptive IM within job interviews prior to the study, which raised numerous theoretical (e.g., is deceptive IM cognitively demanding?) and methodological uncertainties to address (e.g., how should studies within interview contexts measure cognitive load?). However, future research should explore how cognitive load influences the *naturalistic* use of deceptive IM among applicants, similar to findings of studies outside of job interview contexts (van’t Veer et al., 2014). More specifically, it is unclear whether imposing cognitive load actually reduces the use of deceptive IM among applicants. Increasing the perceived cognitive load of applicants may dissuade them from using deceptive IM, given how the cognitive load manipulations lower their mental capacity to use the tactic. Alternatively, a small segment of applicants who are quite motivated to use deceptive IM may be more resistant towards cognitive load manipulations, and still use the tactic frequently despite experiencing higher cognitive load. Nevertheless, being able to reduce the prevalence of deceptive IM through cognitive load manipulations would increase their utility, by preventing a set of behaviours that are thought to be unethical (Buehl & Melchers, 2017) yet also tends to be left unpunished (Melchers et al., 2020).
Additionally, future research should also explore how cognitive load manipulations tend to elicit or suppress more subtle behavioural cues, given how these manipulations have tended to differentiate certain types of behaviours observed between honest and deceptive individuals (Vrij et al., 2008). Exploring these cues will provide substantial contributions to the deceptive IM literature for two main reasons. First, it will help provide a better understanding of how applicants tend to cope behaviourally when experiencing greater cognitive load, especially when there is a lack of research on how applicants change IM strategies due to situational changes (Leary & Kowalski, 1990) during job interviews. In particular, it is unclear how applicants cope behaviourally when experiencing greater cognitive load. Second, it will also provide additional opportunities to combine cognitive load manipulations with other interventions, which may be more effective in reducing or detecting deceptive IM compared to the manipulations alone. For instance, the Criterion-Based Content Analysis (CBCA; Roulin & Powell, 2018) classifies applicant behaviour based on potential cues that indicate the use of deceptive IM, in order to better detect its prevalence. While the increases in detection rates from the implementation of CBCA within job interviews have been modest (63.4%; Roulin & Powell, 2018), it is possible that using cognitive load manipulations may better differentiate these cues among honest and deceptive applicants, and thereby result in greater increases of detection rates. This is important to note because in the current study, the cognitive load manipulations may have been less effective in detecting deceptive IM due to the perceived cognitive load experienced by the interviewers.

Researchers should also continue to fine-tune existing cognitive load manipulations in order to better suit job interview settings, especially when many of these manipulations were designed for other contexts that have very different outcomes and implications (e.g., forensic
settings; Mann et al., 2012; Vrij et al., 2008). This is crucial for ensuring that these manipulations 1) are practical to implement within job interviews, and 2) do not elicit negative reactions from most applicants and interviewers. For instance, some cognitive load manipulations may be more practical when applicants perceive that it is more relevant towards the target occupation. It may be that the secondary task manipulation is more effective when applicants memorize job-related behaviours and actions compared to other non-related information. Additionally, while previous research have tended to apply the manipulations throughout an entire study (Blandon-Gitlin et al., 2015; van’t Veer et al., 2014), future research may want to consider the effects of imposing cognitive load only on certain questions within an entire interview. This may help elicit more positive reactions because applicants may feel that they can perform better at certain points during the interview. Furthermore, particularly for the reverse-order manipulation, there may be times when it is not practical to change the chronological ordering of some interview questions. In addition to these modifications, future research may also want to consider developing new manipulations that are more valid and practical for job interview settings.

Lastly, future studies should explore how cognitive load manipulations influence the reactions among interviewers, and not just the applicants. It is unclear how receptive interviewers are towards these manipulations, considering how their procedures are generally more cumbersome to carry out, and thereby possibly increase the cognitive load of interviewers. As an example, the secondary task manipulation also requires interviewers to switch their attention between the responses to interview questions, as well as how participants recall the list of items. Consequently, the greater demand in carrying out these interviews may also affect how interviewers evaluate applicants’ performances, as well as their ability to detect deceptive IM.
This is important to explore because increased cognitive load is associated with decisions and evaluations that tend to rely on heuristics and more automatic processes (Greene et al., 2008; Tinghog et al., 2016), which may also influence how interviewers observe and interpret applicant behaviour. These effects on interviewer cognitive load and judgements may also influence additional reactions towards the interviews, such as procedural justice. Therefore, organizations may have to further alter the interview design and structure when implementing cognitive load manipulations, in order to prevent these detrimental effects on the interviewers.

**Chapter 5: Conclusion**

The purpose of the study was to explore how cognitive load manipulations influence the perceived cognitive load of honest applicants and those using deceptive IM, and whether these manipulations influence the detection rates of deceptive IM. Additionally, the study explored how cognitive load is associated with applicant reactions. Overall, the cognitive load manipulations and instructions to use deceptive IM were both effective in increasing the cognitive load of both honest and deceptive applicants. While there were mixed results on the effect of cognitive load manipulations on applicant reactions and interview performance, perceived cognitive load consistently mediated these relationships. However, the cognitive load manipulations were not effective in increasing the detection rates of deceptive IM. The study helps advance theory on deceptive IM within job interview settings. However, more research is needed before coming to concrete conclusions on the practicality of using cognitive load manipulation within job interviews. We recommend researchers to continue exploring the effects of cognitive load manipulations on other behavioural patterns related to deceptive IM, and continue fine-tuning these manipulations to make them more practical for their use within job interviews.
References


Schneider, T. J., & Goffin, R. D. (2012). Perceived ability to deceive and incremental prediction in pre-employment personality testing. Personality and Individual Differences, 52(7), 806-811.


Academic Press.
Appendix A: Interview Protocol (for Interviewers)

Interview session (date & time): __________________________
(e.g., January 1, 2020, 12:00AM)

CL Condition: None Reverse-Order Secondary Task

Prior to the Interview:

- Make sure your Zoom is set up properly
- For each participant, highlight which parts of the interview protocol to include or omit
- Have the links to the consent form and instructions to use Deceptive IM ready

- Keep in mind that you are looking for signs of Deceptive IM from the applicant
- You are also looking to see whether the applicant is fit for the position of a clothing store retail sales associate.

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Interview Script

Introduction:

Thank you for expressing interest for participating in our study. The main purpose of the study is to explore how applicants react to different types of job interviews. Your participation will take approximately one hour, where you will first participate in a mock job interview over Zoom. You will then be asked to answer a series of questions pertaining to the interview. In exchange for your participation, you will receive 1.0 course credit.

Before I send the electronic consent form, I would like to ask a couple questions to ensure that you are eligible for the study.

1. Have you been employed anytime during the last two years, whether it was full-time or part-time work?
   a. Yes
   b. No/I forgot

2. During the last two years, have you ever participated in a real job interview?
   a. Yes
   b. No/I forgot

(Send link to consent form & study instructions)
You should see a link to the electronic consent form in the chat dialogue. Feel free to take your time reading the consent form. If you consent to participating in the study, please check off “I consent to participate” on the form and click next. Today’s date is (mention date).

You will subsequently be given the instructions for the interview through the same form.

(Participant says they consented)

Your number is:

1 – no manipulation
2 – reverse-order
3 – secondary-task

Please select the number and click next. Also, please let me know if you have any questions pertaining to the interview instructions.

(Wait for participant to indicate that they are finished)

Do you have any questions before starting the interview?

A: No CL Manipulation

1. Describe a time when you faced a challenge at work. Initially, how did you feel? What steps did you take towards the challenge? What was the final outcome?

2. Can you tell me about a time when you tried to reduce stress for a co-worker? How did you first notice the co-worker’s stress? What steps did you take to deal with the co-worker? Did your actions help in the end?

3. Tell me about a time when you had to perform multiple tasks at the same time. What were the tasks? How did you decide which ones to do first? What was the final outcome?

4. Tell me about a time when you experienced conflicts while working under a team. How did the conflict first arise? How did you approach the conflict, and were your actions successful in reducing the conflict?

5. Describe a time when you saw a problem, and took the initiative to correct it. How did you first notice the problem? How did you take the initiative to correct the problem?
6. **Tell me about a time when you received a negative comment from a customer or a co-worker.** What was the context? How did you initially feel when you received the comment? How did you approach the comment?

**B: Reverse-Order Technique**

1. **Describe a time when you faced a challenge at work.** What was the final outcome? What steps did you take towards the challenge? Initially, how did you feel?
2. **Can you tell me about a time when you tried to reduce stress for a co-worker?** Did your actions help in the end? What steps did you take to deal with the co-worker? How did you first notice the co-worker’s stress?
3. **Tell me about a time when you had to perform multiple tasks at the same time.** What was the final outcome? How did you decide which ones to do first? What were the tasks?
4. **Tell me about a time when you experienced conflicts while working under a team.** Were your actions successful in reducing the conflict, and how did you approach the conflict? How did the conflict first arise?
5. **Describe a time when you saw a problem, and took the initiative to correct it.** How did you take the initiative to correct the problem? How did you first notice the problem?
6. **Tell me about a time when you received a negative comment from a customer or a co-worker.** How did you approach the comment? How did you initially feel when you received the comment? What was the context?

**C: Secondary Recall-based Task**

*(Note: Give approx. 10 seconds for recall response. Repeat list of items twice.)*

1. 
   a. **Please memorize the following information.**
      i. Size Medium
      ii. Merchandise
      iii. Opening
      iv. Skirt
      v. Cash Registry
   b. **Describe a time when you faced a challenge at work.** Initially, how did you feel? What steps did you take towards the challenge? What was the final outcome?
   c. **Please state the items that I mentioned immediately prior to the questions**

2.
a. **Please memorize the following information:**
   
i. T shirt
   ii. Customer Service
   iii. Inventory
   iv. Sweater
   v. Franchise

b. **Can you tell me about a time when you tried to reduce stress for a co-worker?** How did you first notice the co-worker’s stress? What steps did you take to deal with the co-worker? Did your actions help in the end?

c. **Please state the items that I mentioned immediately prior to the questions.**

3.

a. **Please memorize the following information:**
   
i. Manager
   ii. Blouse
   iii. Size Large
   iv. Associate
   v. Sweatshirt

b. **Tell me about a time when you had to perform multiple tasks at the same time.** What were the tasks? How did you decide which ones to do first? What was the final outcome?

c. **Please state the items that I mentioned immediately prior to the questions.**

4.

a. **Please memorize the following information:**
   
i. Opening Day
   ii. Department Store
   iii. Pants
   iv. Customers
   v. Dress Shoes

b. **Tell me about a time when you experienced conflicts while working under a team.** How did the conflict first arise? How did you approach the conflict, and were your actions successful in reducing the conflict?

c. **Please state the items that I mentioned immediately prior to the questions.**

5.

a. **Please memorize the following information:**
   
i. Coat hanger
   ii. Customers
   iii. Size Large
   iv. Display rack
   v. Overtime

b. **Describe a time when you saw a problem, and took the initiative to correct it.** How did you first notice the problem? How did you take the initiative to correct the problem?

c. **Please state the items that I mentioned immediately prior to the questions.**

6.

a. **Please memorize the following information:**
   
i. Compensation
ii. T shirt
iii. Size Small
iv. Returns
v. Casual Shoes

b. **Tell me about a time when you received a negative comment from a customer or a co-worker.** What was the context? How did you initially feel when you received the comment? How did you approach the comment?

c. **Please state the items that I mentioned immediately prior to the questions.**

---

Thank you for taking part in the interview. This marks the end of the first part of the study. You should see a link to a new questionnaire in the chat dialogue for the second part of the study. The questionnaire will ask a series of items pertaining to your experiences during the mock job interview that you just completed. We ask that you complete the questionnaire immediately after the interview – this is very important for the study. Also, you should receive your credit for participating by tomorrow at the latest.

*(send link to survey questionnaire)*

Do you have any other questions before we end the zoom session?

**Things to note after completing the interview:**

1. **The participant showed up to the study.**
   a. Yes, on time.
   b. Yes, but over 5 minutes late.
   c. No
2. **The participant’s webcam and microphone were working.**
   a. Yes
   b. No
3. **Please indicate if the interview was interrupted.**
   a. No interruptions
   b. Yes, but resumed
   c. Yes, did not resume
4. **Please indicate any other comments or notes:**
Appendix B: Interview Instructions

Note: Provided to participants through Qualtrics before the interview

Thank you for your consent. The interview instructions will appear on the following pages. **Before you proceed, however, please let the interviewer know that you provided your consent.**

Please select the number that the interviewer gave you: (1, 2, 3), and click submit.

-------------

For the first part of the study, we will ask you to participate in a mock job interview over Zoom.

-------------

We would like you to imagine that you are currently looking for a retail sales job, and that you sent your resume to a number of companies that advertised open positions. Earlier today, you received an email from your favourite clothing company, where you have been invited for a live interview that takes place over Zoom. The interview is for the position of a **Clothing Store Retail Sales Associate**.

-------------

Below is the company’s job description for a **Clothing Store Retail Sales Associate**:

The Clothing Store Retail Sales Associate maximizes stores sales through effective selling, service and thorough product knowledge. By putting the customer at the center of all we do and exhibiting passion, this position creates a legendary experience that encourages the customer to establish a long relationship with the company. Additionally, individuals in this role contribute to the successful and efficient functioning of the store through a collaborative effort.

Responsibilities of the Store Associate include:

- Achieve personal productivity and assist in meeting store sales goals.
- Engage customers using a variety of tools such as Thank You cards and “clienteling” to promote customer relationships
- Understand and demonstrate product knowledge, selling and operational skills to maximize sales.
- Utilize practices to minimize losses from theft and poor inventory control.
- Assist in maintaining a clean, neat and organized store environment.
- Ability to understand the needs of the customer

Qualifications:
• A passion for delivering outstanding customer service.
• Exceptional communication skills.
• Friendly, Enthusiastic, Outgoing and full of energy
• Must work well with the entire sales team
• Experience is an asset but not required
• Self-starter and uses good judgment in all situations.

-------------

We would like you to participate in the interview as if it was a real job interview, with the objective of trying to get hired for the position.

The interview will consist of questions that will ask you to describe specific experiences from your past. You should ideally rely on job experiences, but you can also discuss volunteering or school-related experiences when appropriate. It is important to answer the questions directly, with detailed responses.

At the end of the interview, the interviewer will evaluate your overall performance.

-------------

For the reverse-order technique only

Also, when the interviewer asks a series of questions, please answer the questions in the order that they are presented.

For example, if you are asked:
“Tell me about a time when you dealt with a rude co-worker.
What happened initially?
How did you deal with the co-worker,
and what was the final outcome?”

Then you would first answer “What happened initially”, then “How did you deal with the co-worker”. And end with “what was the final outcome”.

If you forget any of the questions, feel free to ask the interviewer so that they can remind you.

-------------

For the secondary recall-based task only
Also, in between the interview questions, **you will also be asked to memorize and recall a series of items** presented by the interviewer.

For example, the interviewer will first verbally state a series of items for you to memorize: *Inventory, Size Medium, Clearance.*

The interviewer will **then** present the actual interview question: *“Tell me about a time when you had conflict with a co-worker. What were your experiences like?”.*

After you are done responding to the question, along with any follow-up questions, **you will then be asked to recall the items that appeared prior to the questions.** Specifically in this example, you will be expected to recall *Inventory, Size Medium, Clearance.* The order in which you recall the items does not matter, as long as you recall them correctly.

The process will repeat for every interview question.

--------------------------------

For the interview, we would also like you to use a specific strategy when you answer the question, which appears below. It is very important that you try to utilize the strategy as much as you can during the **entire interview.** **However, please do not directly inform the interviewer what the actual strategy is.**

*(Participants will receive one of two below. Instructions are based on Roulin, 2016)*

**Honest Strategy:**
We ask you to describe an experience that sheds a **positive light** on your skills, your past responsibilities, the way you work, the decisions you made, and your successes and accomplishments. Yet, we want you to remain **completely honest!** This means that you **should not exaggerate or invent anything** in your response, not even a little bit! All the information, facts, numbers, behaviors, results, etc. in your statements have to be **100% true or accurate.**

**Deceptive Strategy:**
We ask you to describe an experience that sheds a **positive light** on your skills, your past responsibilities, the way you work, the decisions you made, and your successes and accomplishments. But with this strategy we want you to use **extreme forms of exaggerations or even inventions!** This means that you **should make your experience look as if everything worked perfectly!** For instance, feel free to present a “normal” situation as if it were particularly important, time-sensitive, or complex for the organization, exaggerate your formal role or invent key responsibilities, pretend that you have and used skills that you do not really possess, or inflate the results you obtained. Yet, be careful to keep your response **realistic and believable** to the interviewer who is evaluating you.
Thank you. Please inform the interviewer that you finished reading the instructions. **You may now close the form.**
Appendix C: Perceived Cognitive Load

Unidimensional Cognitive Load Scale – Mental Effort

Instructions (original): The following questions pertain to your experiences and perceptions during the mock job interview that you just participated in. Please answer the questions as honestly as you can.


|---|--------------------------------|--------------------------|---------------------|-------------------------------|--------------------------------------|-------------------------------|----------------------|---------------------------|--------------------------------|

How much mental effort did you use in the interview?

NASA-TLX


Mental Demand

How mentally demanding was the interview?

0 ---------------------------------------------------------------------------------------------------------- 20
Very Low                                                                                                         Very High

Temporal Demand

How hurried or rushed was the pace of the interview?

0 ---------------------------------------------------------------------------------------------------------- 20
Very Low                                                                                                         Very High

Performance
How successful were you in accomplishing what you were asked to do during the interview?

0 ------------------------------------------------------------------------------------------------------------------------------------ 20
Perfect Failure

Effort

How hard did you have to work to accomplish your level of performance during the interview?

0 ------------------------------------------------------------------------------------------------------------------------------------ 20
Very Low Very High

Frustration

How insecure, discouraged, irritated, stressed, and annoyed were you during the interview?

0 ------------------------------------------------------------------------------------------------------------------------------------ 20
Very Low Very High

Cognitive Load Measure – Naïve Rating


|----------------------|-------------|----------------------|----------------------------|------------------|---------|-----------------|

Intrinsic

• For the interview, many things needed to be kept in mind simultaneously.
• The interview was very complex

Extrinsic

• During the interview, it was exhausting to generate responses to the questions.
• The design of the interview was very inconvenient for responding to the questions.
• During the interview, it was difficult to recognize and retrieve answers to the questions.

Interview-Specific Overall Cognitive Load
|--------------------------------|------------------------|-------------------|-----------------------------|--------------------------------------|-------------------------------|---------------------|------------------------|--------------------------|

How much mental effort did you use in the interview to **create your responses to the questions**?
How much mental effort did you use in the interview to **distort any information for your responses**?
How much mental effort did you use in the interview to **monitor your behaviour**?
How much mental effort did you use in the interview to **control your behaviour**?
How much mental effort did you use in the interview to **monitor** how the interviewer **behaved**?
How much mental effort did you use in the interview to **monitor** how the interviewer **reacted to your responses**?
How much mental effort did you use in the interview to **monitor** whether the interviewer **believed your responses**?
How much mental effort did you use in the interview to **remind yourself of your behavioural strategy**?
How much mental effort did you use in the interview to **justify your behavioural strategy**?
How much mental effort did you use in the interview to **supress any thoughts**?
How much mental effort did you use in the interview to **supress any emotions/feelings**?

**Unique to the reverse-order technique condition:**

How much mental effort did you use in the interview to **answer the questions in the order that they were presented**?
How much mental effort did you use in the interview to **ensure that your responses fit the order of the questions**?

**Unique to the secondary-based recall task condition:**

How much mental effort did you use in the interview to **memorize the lists of items**?
How much mental effort did you use in the interview to **recall the lists of items**?
Appendix D: Capacity and Willingness to engage in Deceptive IM

Capacity and Willingness to Fake


Instructions (original): The following questions pertain to your experiences and perceptions during the mock job interview that you just participated in. Please answer the questions as honestly as you can.

Rating scale:


Capacity to Fake

1. I felt confident in my ability to deceive the interviewer.
2. I could have provided inaccurate information about myself without the interviewer knowing it.
3. I could have misled the interviewer if I wanted to.

Willingness to Fake

1. I am more than willing to deceive the interviewer.
2. I did not want to be caught misleading the interviewer.
3. I felt motivated to mislead the interviewer.

Perceived Behavioural Control


Instructions (adapted from the instructions of Bourdage et al., 2020):

Below is a description of a particular behaviour. In the following questions, the “behaviour” refers to the description below, and the “interview” refers to the mock job interview that you just participated in.
Description of Deceptive IM:

The job applicant uses extreme forms of deception to build a “perfect” story. For instance, they pretend to have important responsibilities, suggest they took ideal actions or made great decisions, or invent extremely positive outcomes or successes.


Perceived Behavioural Control

1. It would be easy for me to use this behavior during the job interview.
2. I would be able to effectively use this behavior during the job interview.
3. I would be confident in my ability to use this behavior during the job interview.

Attitudes

Instructions (adapted from Bourdage et al., 2020):

Please rate the behaviour on the following items (7-point scale):

Good-Bad
Foolish-Wise
Pleasant-Unpleasant
Attractive-Unattractive
Useful-Useless

Perceived Ability to Deceive

Adapted from: Schneider, T. J., & Goffin, R. D. (2012). Perceived ability to deceive and incremental prediction in pre-employment personality testing. Personality and Individual Differences, 52(7), 806-811.


1. I would be better than the average person at lying on the interview without getting caught.
2. I would be better than the average person at greatly exaggerating my work-related experience on the interview without getting caught.

3. How difficult would it be for you to overstate some of your work-related experience on *the job interview* without getting caught?
Appendix E: Procedural Justice


The scale omits Reconsideration Opportunity and Feedback from the Structure higher-order factor subscales because they cannot apply to the interview platform.

Selection Procedural Justice Scale

Rating Scale:

|----------------------|-------------|-----------------------------|---------|-----------------|

Instructions (original): The following questions pertain to the mock job interview that you just participated in. Please answer the questions as honestly as you can.

Structure Higher-Order Factor Subscales

Job-Relatedness-Predictive

1. Doing well on this test means a person can do the clothing store retail sales associate job well.
2. A person who scored well on the interview will be a good clothing store retail sales associate.

Information Known

1. I understood in advance what the interview processes would be like.
2. I knew what to expect on the interview.
3. I had ample information about what the format of the interview would be.

Chance to Perform

1. I could really show my skills and abilities through the interview.
2. The interview allowed me to show what my job skills are.
3. The interview gives applicants the opportunity to show what they can really do.
4. I was able to show what I can do on the interview.

Social Higher-Order Factor Subscales
Openness

1. I was treated honestly and openly during the interview process.
2. The interviewer was candid when answering questions during the interview.
3. The interviewer answered procedural questions in a straightforward and sincere manner.
4. The interviewer did not try to hide anything from me during the interview process.

Treatment

1. I was treated politely during the interview process.
2. The interviewer was considerate during the interview.
3. The interviewer treated me with respect during today’s interview process.
4. The interviewer put me at ease when I took the interview.
5. I was satisfied with my treatment during the interview.

Two-Way Communication

1. There was enough communication during the interview process.
2. I was able to ask questions about the interview.
3. I am satisfied with the communication that occurred during the interview process.
4. I would have felt comfortable asking questions about the interview if I had any.
5. I was comfortable with the idea of expressing my concerns during the interview.

Propriety of Questions

1. The content of the interview questions did not appear to be prejudiced.
2. The interview itself did not seem too personal or private.
3. The content of the interview seemed appropriate.

Job-relatedness Content

1. It would be clear to anyone that the interview is related to the clothing store retail sales associate job.
2. The content of the interview was clearly related to the clothing store retail sales associate job.
Appendix F: Deceptive IM


Instructions (original): The following questions pertain to the mock job interview that you just participated in. Please answer the questions as honestly as you can.


Instructions (original): The following questions pertain to the behaviours of the applicant during the previous interview. Please answer them to the best of your abilities.

<table>
<thead>
<tr>
<th>1. To no extent</th>
<th>2. To a little extent</th>
<th>3. To a moderate extent</th>
<th>4. To a considerable extent</th>
<th>5. To a very great extent</th>
</tr>
</thead>
</table>

Note: bolded items appear in the short deceptive IM

**Slight Image Creation**

*Embellishing (to overstate or embellish answers beyond a reasonable description of the truth)*

I said that I am an expert in an area even though I am only familiar with it
I said that it would take less time to learn the job than I knew it would
I exaggerated my future goals

**I exaggerated my responsibility on my previous jobs**

I exaggerated the impact of my performance in my past jobs
I used examples of my best performance to answer questions about my everyday performance

**Tailoring (to modify or adapt answers to fit the job)**

*During the interview, I distorted my answers based on comments or reactions of the interviewer*

*During the interview, I distorted my answers to emphasize what the interviewer was looking for*

I distorted my answers based on the information about the job I obtained during the interview
I distorted my work experience to fit the interviewer’s view of the position
I distorted my qualifications to match qualifications required for the job
I tried to find out about the organization’s culture and then use that information to fabricate my answers
Fit Enhancing (to create the impression of a fit with the job or organization in terms of beliefs, values, or attitudes)
I enhanced my fit with the job in terms of attitudes, values, or beliefs
I inflated the fit between my values and goals and values and goals of the organization
I inflated the fit between my credentials and the needs of the organization
When asked, I did not mention any disagreements with the organization’s philosophies
I tried to use information about the company to make my answers should like I was a better fit than I actually was

Extensive Image Creation
Constructing (to build stories by combining or arranging work experiences to provide better answers)
I told fictional stories prepared in advance of the interview to best present my credentials
I fabricated examples to show my fit with the organization
I made up stories about my work experiences that were well developed and logical
I constructed fictional stories to explain the gaps in my work experiences
I told stories that contained both real and fictional work experiences
I combined, modified, and distorted my work experiences in my answers
I used made-up stories for most questions

Inventing (to cook up better answers)
I claimed that I have skills that I do not have
I made up measurable outcomes of performed tasks
I claimed work experiences that I do not actually have
I promised that I could meet all job requirements (i.e working late or on weekends), even though I probably could not
I misrepresented the description of an event
I stretched the truth to give a good answer
I invented some work situations or accomplishments that did not really occur
I told some “little white lies” in the interview

Borrowing (to answer based on the experiences or accomplishments of others)
My answers were based on examples of job performance of other employees
When I did not have a good answer, I borrowed work experiences of other people and made them sound like my own
I used other people’s experiences to create answers when I did not have good experiences of my own
I described team accomplishments as primarily my own

Image protection
Omitting (to not mention some things in order to improve answers)
When asked directly, I tried to say nothing about my real job-related weaknesses
I tried to avoid discussion of job tasks that I may not be able to do
I tried to avoid discussing my lack of skills or experiences
I tried not to admit that I did not know an answer
I did not mention that I believed I needed additional training to do the job
When asked directly, I did not mention my true reason for quitting previous job

**Masking (to disguise or conceal aspects of background to create better answers)**
I tried to mention only my limitations that are easily remedied
I did not reveal my true career intentions about working with the hiring organization
I tried not to show my true personality
**When asked directly, I did not mention some problems that I had in past jobs**
I did not reveal requested information that might hurt my chances of getting a job
I talked mainly about my strengths to mask my weaknesses
**I covered up some “skeletons in my closet”**

**Distancing (to improve answers by separating from negative events or experiences)**
I tried to suppress my connection to negative events in my work history
**I clearly separated myself from my past work experiences that would reflect poorly on me**
I tried to convince the interviewer that factors outside my control were responsible for some negative outcomes, even though it was my responsibility

**Ingratiation**

**Opinion Conforming (to express beliefs, values, or attitudes held by the interviewer or organization)**
I tried to adjust my answers to the interviewer’s values and beliefs
I tried to agree with interviewer outwardly, even when I disagree inwardly
**I tried to find out interviewer’s views and incorporate them in my answers as my own**
**I tried to express the same opinions and attitudes as the interviewer**
**I tried to appear similar to the interviewer in terms of values, attitudes, or beliefs**
I tried to express enthusiasm or interest in anything the interviewer appeared to like even if I did not like it
I did not express my opinions when they contradicted the interviewer’s opinions
I tried to show that I shared the interviewer’s views and ideas even if I did not

**Interviewer or Organization Enhancing (to insincerely praise or compliment the interviewer or organization)**
I laughed at the interviewer’s jokes even when they were not that funny
I exaggerated the interviewer’s qualities to create the impression that I think highly of him/her
I exaggerated my positive comments about the organization
**I complimented the organization on something, however insignificant it may actually be to me**
Appendix G: Honest IM


Short IM Scale

Instructions (original): The following questions pertain to the mock job interview that you just participated in. Please answer the questions as honestly as you can.

<table>
<thead>
<tr>
<th>1. To no extent</th>
<th>2. To a little extent</th>
<th>3. To a moderate extent</th>
<th>4. To a considerable extent</th>
<th>5. To a very great extent</th>
</tr>
</thead>
</table>

Honest IM

Self Promotion

1. I made sure to let the interviewer know about my job credentials.
2. I made sure the interviewer was aware of my skills and abilities.
3. I let the interviewer know how my qualifications were well-suited for the position.
4. I brought up my past work experience to make the interviewer aware of my competence.

Defensive

1. I gave the interviewer an honest account of why I lacked control over past negative events that came up during the interview.
2. I recounted to the interviewer steps I had taken to prevent the recurrence of negative events or occurrences in my past.
3. I shared my past regrets about how I handled certain situations and how I would improve in the future.
4. I gave reasons why I felt I benefited positively from a negative event I was responsible for.

Ingratiation

1. I tried to find out the values or opinions the interviewer and I shared in common, and was vocal about these.
2. I found out about values and goals that I shared with the organization and made sure to emphasize them.
3. When the interviewer expressed views that I shared, I focused on incorporating these into my answers.
4. I discussed interests I shared in common with the interviewer.
Appendix H

Organizational Attraction


Instructions (original): We would like you to imagine that a real organization/company was coordinating the interview that you just participated in. The following questions pertain to your perceptions of that company, as if you were actually applying for a job. Please answer the questions as honestly as you can.


General Attractiveness

For me, this company would be a good place to work.
I would not be interested in this company except as a last resort.
This company is attractive to me as a place for employment.
I am interested in learning more about this company.
A job at this company is very appealing to me.

Intentions to pursue

I would accept a job offer from this company.
I would make this company one of my first choices as an employer.
If this company invited me for a job interview, I would go.
I would exert a great deal of effort to work for this company.
I would recommend this company to a friend looking for a job.
### Appendix I: Interview Anxiety


*Instructions (original): The following questions pertain to your experiences in job interviews overall.*

|----------------------|-------------|-------------------------------|---------|------------------|

**Communication Anxiety**
- During the interview, I became so apprehensive that I was unable to express my thoughts clearly.
- During the interview, I got so anxious that I have trouble answering questions that I know.
- During the interview, I often could not think of a thing to say.
- I felt that my verbal communication skills were strong during the interview.*
- During the interview, I found it hard to understand what the interviewer was asking me.
- I found it easy to communicate my personal accomplishments during the job interview.*

**Appearance Anxiety**
- I often felt uneasy about my appearance when I was being interviewed during the interview.
- During the interview, I was so nervous that I spent an excessive amount of time on my appearance.
- During the interview, I worried that the interviewer would focus on what I consider to be my least attractive physical features.
- During the interview, I found it very hard to be relaxed when I do not look my absolute best.
- I felt uneasy on whether my hair was not perfect before starting the interview.
- During the interview, I worried about whether I have dressed appropriately.

**Social Anxiety**
- While taking during the interview, I became concerned that the interviewer would perceive me as socially awkward.
- I became very uptight about having to socially interact with the job interviewer.
- I got afraid about what kind of personal impression I was making on during the interview.
- During the interview, I worried that my actions would not be considered socially appropriate.
- I worried about whether the interviewer would like me as a person.
- When meeting the interviewer, I worried that my introduction would not be correct.

**Performance Anxiety**
- During the interview, I got very nervous about whether my performance was good enough.
- I was overwhelmed by thoughts of doing poorly during the interview.
- I worried that my job interview performance would be lower than that of other applicants.
During the interview, I was so troubled by thoughts of failing that my performance was reduced. During the interview, I worried about what would happen if I don’t get the job. While taking during the interview, I worried about whether I would be a good candidate for the job.

**Behavioral Anxiety**
During the interview, my hands shook. My heartbeat was faster than usual during the interview. It was hard for me to avoid fidgeting during the job interview. The job interview made me perspire (e.g., sweaty palms and underarms). My mouth got very dry during the interview. I often felt sick to my stomach when I was being interviewed for the job. *reverse coded*


*Instructions (original): The following questions pertain to the mock job interview that you just participated in. Please answer the questions as honestly as you can.*


The applicant experienced a high degree of apprehension in the interview. The applicant felt anxious during the interview.
Appendix J: Organizational Attraction


**General Attractiveness**
- For me, this company would be a good place to work.
- I would not be interested in this company except as a last resort.*
- This company is attractive to me as a place for employment.
- I am interested in learning more about this company.
- A job at this company is very appealing to me.

**Intentions to Pursue**
- I would accept a job offer from this company.
- I would make this company one of my first choices as an employer.
- If this company invited me for a job interview, I would go.
- I would exert a great deal of effort to work for this company.
- I would recommend this company to a friend looking for a job.

*Reverse coded*
Appendix K: Detecting Deceptive IM


Below is a definition for Deceptive Impression Management:

**Deceptive IM** - The job applicant uses extreme forms of deception to build a “perfect” story. For instance, they pretend to have important responsibilities, suggest they took ideal actions or made great decisions, or invent extremely positive outcomes or successes.

In your opinion, did the participant use Deceptive IM during the interview?

- Yes, used Deceptive IM
- No, did not use Deceptive IM
Appendix L: Interview Performance


Instructions (Original): The following items pertain to the participant's interview performance. Please answer them to the best of your abilities.


1. The applicant was able to convince me that he/she had the required abilities for the position.
2. The applicant made a good impression on me
3. I would give a good evaluation to this applicant
4. The applicant would have moved to the next step in the selection process
5. I would recommend this applicant for the position.
Appendix M: Manipulation Checks


Careless response items

|---|----------------------|-------------|-------------------------------|---------|------------------|

1. Please indicate “strongly disagree” for this question.
2. Please indicate “disagree” for this question.
3. Please indicate “neither agree nor disagree” for this question.
4. Please indicate “agree” for this question.
5. Please indicate “strongly agree” for this question.

Participant Seriousness


|---|----------------------|-------------|-------------------------------|---------|------------------|

I answered the survey questions seriously.

Motivation to Perform in the Interview


Instructions (original): The following questions pertain to the mock job interview that you just participated in. Please answer the questions as honestly as you can.

|---|----------------------|-------------|-------------------------------|---------|------------------|

Doing well on the interview is important to me.
I wanted to do well on the interview.
I tried my best on the interview.
I tried to do the very best I could to on the interview.
During the interview, I concentrated and tried to do well.
I want to be among the top performers on the interview.
I pushed myself to work hard on the interview.
I was extremely motivated to do well on the interview.
* I just didn’t care how I did on the interview.
* I didn’t put much effort into the interview.

*Reverse coded

Re-Consent

Source: Stephanie Law’s dissertation

1. Thank you for participating. We would like to give you this time to confirm your consent.
   a. At this time, I re-consent to the use of my questionnaire and the interview recording.
   b. At this time, I would like to withdrawal consent for the use of my questionnaire and the interview recording.
Appendix N: Demographics

At the beginning of the questionnaire:

1. Please indicate the date and time when you started the Zoom session for the current study.
   a. (Options to select date and time)
2. Please indicate your first and last name.
   a. (Options to input first and last names separately)
3. During the interview, you were instructed to use the following behavioural tactic:
   a. Use Honest Behaviour
   b. Use extensive Deceptive Impression Management

At the end of the questionnaire:

4. Please indicate your age using the slider below.
   a. Slider scale from 18 – 99
5. Please indicate the gender you identify as.
   a. Male
   b. Female
   c. Other
   d. Choose not to answer
6. Are you currently an employee?
   a. Yes, Full-time (35hrs or more)
   b. Yes, Part-time (Less than 35hrs)
   c. No
7. Please indicate your total work experience: (Student Samples)
   a. Less than one year
   b. 1 – 2 years
   c. 3 – 4 years
   d. 5 – 6 years
   e. 7 years or more
8. In the last two years, have you been employed either full-time or part-time?
   a. Yes
   b. No
9. In the last two years, have you taken part in a job interview?
   a. Yes
   b. No
Appendix O: Consent Form

Name of Researcher, Faculty, Department, Telephone & Email:
Benjamin Moon, MSc. Candidate, Faculty of Arts, Department of Psychology.
Email: benjamin.moon@ucalgary.ca

Supervisor:
Joshua Bourdage, Ph.D., Faculty of Arts, Department of Psychology.
Phone: 403-220-4953
Email: Joshua.bourdage@ucalgary.ca

Title of Project:
An investigation into perceptions towards online job interviews

This consent form, a copy of which has been given to you, is only part of the process of informed consent. If you want more details about something mentioned here, or information not included here, you should feel free to ask. Please take the time to read this carefully and to understand any accompanying information.

The University of Calgary Conjoint Faculties Research Ethics Board has approved this research study. Participation is completely voluntary.

Purpose of the Study
The purpose of the study is to explore how applicants perceive and react to different kinds of job interviews that are administered online. You are invited to participate because during the last two years, 1) you have had prior work experience (part-time or full-time), and 2) you participated in a job interview. In addition, the study requires you to have Zoom installed on your device with a working webcam and a microphone.

What Will I Be Asked To Do?
Participation will take approximately 60 minutes. In the first part of the study, you will partake in a short mock interview that is administered through Zoom. Afterwards, you will be asked to complete a questionnaire, which contains items pertaining to your reactions and your behaviour during the mock interview. It is expected that you complete the questionnaire immediately after the mock interview. As compensation for your participation in the study, you will receive 1.0 bonus credit. Participation is completely voluntary. You may decline to answer any questions at any given time, and you may withdraw from the study without affecting your compensation.
What Type of Personal Information Will Be Collected?
Prior to the start of the study, you will be asked to provide your name and your work experience. This is to ensure that 1) you are properly compensated for participating in the study, and 2) to ensure that you are eligible to participate in the study. **The mock interview will record your video and audio.** The study questionnaire will ask for additional demographic information (*e.g.*, age, sex, work experience). All of the information collected will only be analyzed at the group level, meaning that responses cannot be traced back to a specific participant. However, if you feel uncomfortable providing any of the information, you are not required to do so.

Are there Risks or Benefits if I Participate?
Your data will remain confidential and the risks associated with participation are minimal. However, you may perceive that your interview performance is not as good as you intended. If you feel any discomfort, you may withdraw your participation by leaving the study. You will still receive your participation compensation as a result. Any information that you provided until the point of withdrawal will be retained on the survey platform, but they will not be linked to you personally.

By participating in the study, you will receive 1.0 bonus credit.

What Happens to the Information I Provide?
**Participation is completely voluntary.** Your questionnaire responses will be kept confidential during the study, and will be made anonymous once the study is complete. If you withdraw from the study, the researchers will retain any anonymized data collected up to the point of withdrawal. The questionnaire data is retained to analyze whether participants withdrawing from the study are significantly different from those that complete the study in terms of demographics and attitudes. If you wish to have your data removed, you can contact the researchers.

Consent
By clicking “I give my consent” below, you are affirming that you 1) understand to your satisfaction the information provided to you about your participation in your research project, and 2) agree to participate as a research participant in a study involving a video job interview and a survey questionnaire. In no way does this waive your legal rights nor release the investigators, sponsors, or involved institutions from their legal and professional responsibilities. You should feel free to ask for clarification or new information throughout your participation.

Questions/Concerns
If you have any further questions or want clarification regarding this research and/or your participation, please contact:
Benjamin Moon, MSc. Candidate,
Faculty of Arts, Department of Psychology.
Email: benjamin.moon@ucalgary.ca

Joshua Bourdage, Ph.D.,
Faculty of Arts, Department of Psychology.
Phone: 403-220-4953
Email: Joshua.bourdage@ucalgary.ca

If you have any concerns about the way you’ve been treated as a participant, please contact the Research Ethics Analyst, Research Services Office, University of Calgary at 403.220.6289 or 403.220.8640; email cfreb@ucalgary.ca. A copy of this consent form has been given to you to keep for your records and reference. The investigator has kept a copy of the consent form.

Name:

Session Time:

Please indicate your consent below:
I give my consent to participate in the study.

I do not give my consent to participate in the study.
Appendix P: Debriefing

Deceptive Impression Management (IM; *i.e.*, distorting qualifications, making up stories) among applicants has long been a problem within Job Interviews. Specifically, Deceptive IM can lead to unqualified applicants being recruited into the workplace. Applicants that engage in Deceptive IM also tend to have undesirable traits, such as low Honesty-Humility. However, various interventions towards reducing or detecting Deceptive IM have been rather ineffective.

The purpose of the study was to determine whether imposing Cognitive Load (in other words, reducing mental capacity) of applicants can make engaging in Deceptive IM more difficult. Furthermore, the study also explores how applicants react to additional Cognitive Load during a job interview. In our study, we predicted that imposing Cognitive Load would reduce the mental capacities of job applicants, and that the effect would be stronger among applicants that use Deceptive IM. While Cognitive Load within interviews have been tested in non-work settings, our study is one of the first to determine whether imposing cognitive is also effective for making Deceptive IM more difficult specifically within job interviews.

You may have performed a secondary task during the interview, or answered follow-up questions that were presented in reverse chronological order. The intentions of these modifications to the interview were to impose additional Cognitive Load. Your participation in the study will help us obtain a better understanding of applicant mental processes behind job interviews. Furthermore, the results from the study will help launch future studies on Cognitive Load within job interviews.

We are grateful for your participation in the study. If you have any questions, concerns or comments you would like to share, or if you wish to learn about our research on Cognitive Load and job interviews, feel free to contact Benjamin Moon (Graduate Student, Department of Psychology, benjamin.moon@ucalgary.ca) or Dr. Joshua Bourdage (Associate Professor,
Department of Psychology, jboudage@ucalgary.ca). Thank you for taking the time to participate in the study. Your participation makes an important contribution towards the research.
Appendix Q: Construct map to generate items for the ISCL Scale

(Interview Specific Cognitive Load scale)

“A-priori estimate of cognitive load”

Measured during the task

Mental load: aspect of cognitive load that originates from the interaction between task and subject characteristics.

Mental effort: cognitive capacity that is actually allocated to accommodate the demands imposed by the task; thus, it can be considered to reflect the actual cognitive load.

Performance

Measurable dimensions (Plass & Merrilhoe, 1994)

Cognitive Load

“multidimensional construct representing the load that performing a particular task imposes on the learner’s cognitive system” (Plass & Merrilhoe, 1994)

Types of cognitive load

Intrinsic load: load resulting from the inherent complexity of the learning task.

Extrinsic load: caused by the design of the task

Germane load: activities that contribute to transfer performance. Controversy in distinguishing GL from other loads
1) High reliability
2) Sensitive to task complexity and intrinsic load (Ayres, 2006)

Recommended not to 1) change the 9-point rating scale nor 2) measure task difficulty (van Gog & Pass, 2008)

Pass (1992): "How much mental effort did you exert during...?"

9-point scale

Measuring Mental effort

NASA-TLX (Hart & Staveland, 1988)
Perceived Performance, Effort, Frustration, Mental/Physical/Temperal demands

Encompasses beyond cognitive load (van Gog & Pass, 2008)

Strong correlation ($r = .80, r = .62$) between mental demand subscale and Pass (1992)'s scale (Naismith et al., 2015)

Unlike workload, cognitive load does not take into account of individual beliefs, expectations, or goals (Moreno, 2006).
**Intrinsic load:** load resulting from the inherent complexity of the task.

**Extrinsic load:** caused by the design of the task

**Germaine load:** activities that contribute to transfer performance. Controversy in distinguishing GL from other loads

---

**Klesch et al., 2017; a = .81**
- For this task, many things needed to be kept in mind simultaneously.
- The task was very complex.

**Leppink et al. (2013; a = .86 - .91)**
- The topic/topics covered in the activity was/were very complex.
- The activity covered formulas that I perceived as very complex.
- The activity covered concepts and definitions that I perceived as very complex.

**Ayres, 2006 (Factor loading with Leppink et al. = .62)**

The lecture that just finished was... ("very, very easy → very, very difficult. 9 point scale")

**Leppink & den Heuvel (2015; a = .89)**
- The content of this activity was very complex.
- The problem/s covered in this activity was/were very complex.
- In this activity, very complex terms were mentioned.
- I invested a very high mental effort in the complexity of this activity.

**Klesch et al., 2017; a = .86**
- During the task, it was exhausting to find the important information.
- The design of the task was very inconvenient for learning.
- During the task, it was difficult to recognize and link the crucial information.

**Leppink et al. (2013; a = .63-87)**
- The instructions and/or explanations during the activity were very unclear.
- The instructions and/or explanations were, in terms of learning, very ineffective.
- The instructions and/or explanations were full of unclear language.

**Ciemniak et al., 2009 (Factor loading with Leppink et al. = .42)**

To learn from the lecture was... (very, very easy → very, very difficult. 9 point scale)

**Leppink & den Heuvel (2015; a = .75)**
- The explanations and instructions in this activity were very unclear.
- The explanations and instructions in this activity were full of unclear language.
- The explanations and instructions in this activity were, in terms of learning, very ineffective.
- I invested a very high mental effort in unclear and ineffective explanations and instructions in this activity.

**Klesch et al., 2017; a = .67**
- I made an effort, not only to understand several details, but to understand the overall context.
- My point while dealing with the task was to understand everything correct.

**Leppink et al. (2013; a = .94-97)**
- The activity really changed my knowledge and understanding of statistics.
- The activities really enhanced my understanding of the formulas covered.
- The activity really enhanced my understanding of concepts and definitions.

**Salomon, 1984 (Factor loading = .48)**

How much did you concentrate during the lecture? (Very, very little → very, very much. 9 point scale)
Appendix R: Scale Development Process for Perceived Cognitive Load

As an overview, I first tested the reliabilities and the inter-item correlations for the modified version of Klepsch et al. (2017)’s scale and the ISCL. I then run EFAs on the two multi-item scales, and I also tested intercorrelations between the two scales and single-item measures of cognitive load. Based on these analyses, I selected one of the multi-item scales to measure perceived cognitive load for the hypotheses tests. I subsequently ran hierarchical multiple regressions of the selected scale, in order to ensure that it has incremental validity in predicting relevant outcomes of interest. I also tested the intercorrelations between the selected scale and these outcomes.

Overall, both Klepsch et al. (2017)’s measure ($\alpha = .84$) and the ISCL measure ($\alpha = .87$) provided similar and adequate reliabilities. The inter-item correlations ranged from $r = .65$ to $.82$ for Klepsch et al. (2017), and $r = .57$ to $.73$ for the ISCL, $p < .001$.

Exploratory Factor Analysis

The EFAs for both scales used the principal axis factoring method and direct oblimin rotation. I also specified a maximum of 25 iterations.

Klepsch et al. (2017). I first ran a scree plot to determine the appropriate number of components to extract in the EFA. Klepsch et al. (2017) demonstrated that the items used from the original scale consisted of two unique factors (i.e., intrinsic and extrinsic cognitive load). However, the scree-plot based on the item intercorrelations indicated that there was only one component that contained an eigenvalue greater than 1 (see Figure R1).

Figure R1

Scree plot for Klepsch et al. (2017)
Therefore, the first EFA specified only one factor. All of the items loaded adequately onto the single factor solution. Nevertheless, I also tested a two-factor EFA as the original items were theorized to have two factors. The intrinsic and extrinsic items loaded adequately into their own factors, without any substantial cross-loadings. Refer to Table R1 for the loadings.

**Table R1**

*Factor loadings of Klepsch et al. (2017)*

<table>
<thead>
<tr>
<th>Item</th>
<th>One Factor</th>
<th>Two Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Factor</td>
<td>Factor 1</td>
</tr>
<tr>
<td>Intrinsic 1</td>
<td>0.58</td>
<td>0.14</td>
</tr>
<tr>
<td>Intrinsic 2</td>
<td>0.78</td>
<td>-0.01</td>
</tr>
<tr>
<td>Extrinsic 1</td>
<td>0.73</td>
<td>0.61</td>
</tr>
<tr>
<td>Extrinsic 2</td>
<td>0.72</td>
<td>0.51</td>
</tr>
<tr>
<td>Extrinsic 3</td>
<td>0.77</td>
<td>0.94</td>
</tr>
<tr>
<td>SS Loadings</td>
<td>2.59</td>
<td>1.69</td>
</tr>
<tr>
<td>Proportion of Variance</td>
<td>0.52</td>
<td>0.34</td>
</tr>
</tbody>
</table>
Note. Refer to Appendix C for the list of items. Bolded items indicate loadings .30 or greater. The loadings come from the pattern matrix.

**ISCL.** Unlike Klepsch et al. (2017)’s scale, there was no a priori prediction pertaining to the number of factors contained in the ISCL. The scree-plot based on the item intercorrelations indicated that there were three components that contained an eigenvalue greater than one (see Figure R2).
Therefore, I ran an EFA specifying three factors. I also ran an EFA specifying one-factor to evaluate whether the items all correspond to a similar construct, given how the first component had a substantially higher eigenvalue compared to components two and three. The items loaded adequately in the single-factor solution. However, the three-factor solution demonstrated substantial cross-loadings for certain items (refer to Table R2). The loadings also did not fully correspond to broader types of interview behaviour (e.g., formulating responses to questions, using deceptive IM).
Table R2

**Factor loadings of ISCL**

<table>
<thead>
<tr>
<th>Item</th>
<th>One Factor</th>
<th>Three Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Factor 1</td>
<td>Factor 2</td>
</tr>
<tr>
<td>ISCL1</td>
<td>0.54</td>
<td>0.29</td>
</tr>
<tr>
<td>ISCL2</td>
<td>0.55</td>
<td>0.71</td>
</tr>
<tr>
<td>ISCL3</td>
<td>0.68</td>
<td>-0.01</td>
</tr>
<tr>
<td>ISCL4</td>
<td>0.72</td>
<td>0.00</td>
</tr>
<tr>
<td>ISCL5</td>
<td>0.53</td>
<td>-0.06</td>
</tr>
<tr>
<td>ISCL6</td>
<td>0.50</td>
<td>-0.03</td>
</tr>
<tr>
<td>ISCL7</td>
<td>0.65</td>
<td>0.46</td>
</tr>
<tr>
<td>ISCL8</td>
<td>0.66</td>
<td>0.83</td>
</tr>
<tr>
<td>ISCL9</td>
<td>0.67</td>
<td>0.71</td>
</tr>
<tr>
<td>ISCL10</td>
<td>0.70</td>
<td>0.42</td>
</tr>
<tr>
<td>ISCL11</td>
<td>0.71</td>
<td>0.30</td>
</tr>
<tr>
<td>SS Loadings</td>
<td>4.40</td>
<td>2.51</td>
</tr>
<tr>
<td>Proportion of Variance</td>
<td>0.40</td>
<td>0.23</td>
</tr>
</tbody>
</table>

*Note.* Refer to Appendix C for the list of items. Bolded items indicate loadings .30 or greater. The loadings come from the pattern matrix.

**Convergent Validity**

Refer to Table R3 for the intercorrelations of the cognitive load measures. The intrinsic and extrinsic measures are part of Klepsch et al. (2017). Overall, there were moderate to strong correlations amongst all measures. Supporting previous findings and assertions (Naismith et al., 2015; van Gog et al., 2008), there was very strong overlap between the mental demand item from NASA-TLX (Hart & Staveland, 1988) and the mental effort measure from Paas and Merrienboer (1994; \( r = .60, p < .001 \)). In line with previous research suggesting that the mental effort and mental demand measures correspond more strongly to intrinsic cognitive load (Leppink et al., 2013), the intrinsic subscale from Klepsch et al. (2017) demonstrated stronger association to the one-item measures \( (r = .44 - .57, p < .001) \) compared to the Extrinsic subscale \( (r = .33 - .42, p < .001) \).
Table R3

*Intercorrelations of the Cognitive Load measures*

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Intrinsic</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Extrinsic</td>
<td>.63**</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Klepsch et al. (2017)</td>
<td>.84**</td>
<td>.95**</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. ISCL</td>
<td>.35**</td>
<td>.40**</td>
<td>.42**</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Mental Demand</td>
<td>.57**</td>
<td>.42**</td>
<td>.52**</td>
<td>.37**</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>6. Paas &amp; Merrienboer (1994)</td>
<td>.44**</td>
<td>.33**</td>
<td>.40**</td>
<td>.40**</td>
<td>.60**</td>
<td>-</td>
</tr>
</tbody>
</table>

*Note.* **p < .01. Intrinsic = Intrinsic load from Klepsch et al. (2017), Extrinsic = Extrinsic load from Klepsch et al. (2017), ISCL = Interview-specific cognitive load, Mental Demand = Mental demand subscale from NASA-TLX (Hart & Staveland, 1988), Paas & Merrienboer = Unidimensional mental effort scale.

While the correlation between Klepsch et al. (2017)’s measure and the Mental Effort measure (Paas & Merrienboer, 1994) were identical to the correlation between the ISCL and the Mental effort measure (r = .40, p < .001), Klepsch et al. (2017)’s measure correlated more strongly to the mental demand subscale (r = .42, p < .001; Hart & Staveland, 1988) than the ISCL (r = .37, p < .001). The finding was unexpected because the ISCL is worded to assess a particular aspect of cognitive load that is quite similar (i.e., mental effort, mental demand). In summary, the reliabilities and the item intercorrelations were similar for Klepsch et al. (2017) and the ISCL. Both scales also appear to predominantly measure a single factor, according to the EFAs. However, considering how the correlations of Klepsch et al. (2017) were in line with predictions, whereas those of ISCL were not, I selected Klepsch et al. (2017)’s measure (comprising of intrinsic and extrinsic subscales) to evaluate perceived cognitive load for the hypothesis tests.

*Incremental Validity of Klepsch et al. (2017)*
At this point, a decision was made to use Klepsch et al. (2017)’s measure to evaluate perceived cognitive load. However, in order to verify the incremental validity of the scale, I ran a series of hierarchical regressions to test the incremental validity of Klepsch et al. (2017) over three existing measures designed to assess capacity to use deceptive IM, which is thought to relate to applicant cognition (Levashina & Campion, 2006). These regressions were important in determining to what extent cognitive load and capacity to use deceptive IM were related in predicting relevant theoretical outcomes, as well as whether cognitive load was a unique construct. Refer to Table R4 for the regression results for the overall sample. All $R^2$ values were adjusted for the number of predictors in the model.
### Table R4

**Incremental Variance of Klepsch et al. (2017)**

<table>
<thead>
<tr>
<th></th>
<th>IP</th>
<th>PJ</th>
<th>IA</th>
<th>OA</th>
<th>DIM</th>
<th>HIM</th>
<th>Attitudes</th>
<th>Willingness</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Intercept</strong></td>
<td>2.86**</td>
<td>3.63**</td>
<td>2.86**</td>
<td>2.92**</td>
<td>1.14**</td>
<td>1.91**</td>
<td>0.58*</td>
<td>0.87**</td>
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<td>PATD</td>
<td>-0.03</td>
<td>0.00</td>
<td>-0.03</td>
<td>0.07</td>
<td>0.10</td>
<td>0.14*</td>
<td>0.03</td>
<td>0.12</td>
</tr>
<tr>
<td>PBC</td>
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<td>0.07</td>
<td>0.09</td>
<td>0.07</td>
<td>-0.02</td>
<td>0.18**</td>
<td>0.73**</td>
<td>0.03</td>
</tr>
<tr>
<td>Capacity</td>
<td>0.11</td>
<td>-0.04</td>
<td>0.11</td>
<td>0.02</td>
<td>0.16*</td>
<td>-0.12*</td>
<td>0.01</td>
<td>0.31**</td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.01</td>
<td>0.01</td>
<td>0.02</td>
<td>0.02</td>
<td>0.07**</td>
<td>0.11**</td>
<td>0.29**</td>
<td>0.16**</td>
</tr>
</tbody>
</table>

**Step 2**

<table>
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<tr>
<th></th>
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<th>IA</th>
<th>OA</th>
<th>DIM</th>
<th>HIM</th>
<th>Attitudes</th>
<th>Willingness</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Intercept</strong></td>
<td>3.79**</td>
<td>4.39**</td>
<td>2.03**</td>
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<td>2.03**</td>
<td>0.72</td>
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<td>-0.02</td>
<td>-0.02</td>
<td>0.05</td>
<td>0.12</td>
<td>0.14*</td>
<td>0.02</td>
<td>0.13</td>
</tr>
<tr>
<td>PBC</td>
<td>0.06</td>
<td>0.05</td>
<td>-0.03</td>
<td>0.05</td>
<td>0.00</td>
<td>0.17**</td>
<td>0.73**</td>
<td>0.05</td>
</tr>
<tr>
<td>Capacity</td>
<td>0.10</td>
<td>-0.04</td>
<td>-0.04</td>
<td>0.02</td>
<td>0.16**</td>
<td>-0.12*</td>
<td>0.00</td>
<td>0.32**</td>
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<tr>
<td>CL</td>
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<td>-0.14**</td>
<td>0.25**</td>
<td>-0.12**</td>
<td>0.13**</td>
<td>-0.02</td>
<td>-0.03</td>
<td>0.13**</td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.07**</td>
<td>0.15**</td>
<td>0.18**</td>
<td>0.05**</td>
<td>0.11**</td>
<td>0.11**</td>
<td>0.29**</td>
<td>0.19**</td>
</tr>
<tr>
<td>$\Delta R^2$</td>
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<td>0.14**</td>
<td>0.16**</td>
<td>0.03**</td>
<td>0.04**</td>
<td>0.00</td>
<td>0.00</td>
<td>0.03**</td>
</tr>
</tbody>
</table>

Note. All $R^2$ values are adjusted values. The coefficients for individual predictors are unstandardized. PATD = Perceived Ability to Deceive (Schneider & Goffin 2012), PBC = Perceived Behavioural Control (Ajzen, 1991), Capacity = Capacity to Fake (Law et al., 2016), CL = Cognitive Load, IP = Interview Performance, PJ = Procedural Justice, IA = Interview Anxiety (Self-Rated), OA = Organizational Justice, DIM = Deceptive Impression Management, HIM = Honest Impression Management, Attitudes = Attitudes towards Faking, Willingness = Willingness to Fake.

*$p < .05$, **$p < .01$. 
The cognitive load measure provided significant incremental variance beyond that of perceived ability to deceive, perceived behavioural control, and capacity to fake in predicting the four outcomes of interest in the study hypotheses (i.e., interview performance, procedural justice, interview anxiety, organizational attraction), \( p < .01 \). Interestingly, none of the existing measures to assess capacity to use deceptive IM significantly predicted these outcomes in neither Step 1 nor Step 2. Furthermore, cognitive load provided significant incremental variance in predicting willingness to fake, \( p < .01 \), but not attitudes towards the behaviour, \( p > .05 \). In line with theory suggesting that deceptive behaviour is more cognitively taxing than honest behaviour, cognitive load provided significant incremental variance in predicting deceptive IM use, \( p < .01 \). However, cognitive load did not provide significant variance in predicting honest IM use, \( p > .05 \), unlike the rest of the measures, \( p < .05 \). Overall, the results of the hierarchical regressions suggest that perceived cognitive load is a unique measure from existing ones that assess capacity to use deceptive IM, and that its relations to numerous applicant outcomes tends to be distinct from many of these variables.

Because some of the outcomes in the regressions may highly confound with the study design (e.g., willingness to fake), the study also ran separate hierarchical regressions using the same steps for participants instructed to be either honest or use deceptive IM. The results among participants instructed to use deceptive IM matched those of the full sample. Among participants instructed to use deceptive IM, cognitive load significantly predicted the four outcomes in the study hypotheses, \( p < .01 \), but not the supplemental outcomes, \( p > .05 \).

**Intercorrelations with Klepsch et al. (2017)**

There were strong intercorrelations between capacity to fake, perceived behavioural control and perceived ability to deceive, \( r = .48 \text{ to } .68, p < .001 \). These findings suggest that the
three measures assess very similar constructs. However, Klepsch et al. (2017)’s measure only weakly related to perceived behavioural control \( (r = -0.18, p = 0.004) \) and perceived ability to deceive \( (r = -0.17, p = 0.008) \). The measure did not significantly relate to capacity to fake \( (r = 0.12, p = 0.067) \). These findings further support the notion that perceived cognitive load is a unique construct that is not redundant with existing measures to assess capacity to use deceptive IM.